

Manufacturers Record

Reg. U. S. Patent Office



OCTOBER 1934

25 CENTS A COPY

Question of the Hour

IS America moving
toward well-being,
or will the forces at
work destroy the liberty
which has been a guide
to the world for 158 years

?

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**This booklet should be on
every MAINTENANCE MAN'S desk**

"Over the Rough Spots"

25 MILLION SQ. FT. in U.S.A.

STONHARD COMPANY
401 N. BROAD ST. PHILADELPHIA, PA.

Free - 16 page Booklet ***** describing practical methods for repairing and resurfacing rutted, broken and irregularly worn factory floors and platforms without interrupting production. It tells how any handy man can permanently stop water leaking through walls, whether it be an occasional seepage, or a stream the size of your fist; methods for resurfacing and renewing thin, weather-beaten roof surfaces; how to rustproof outside metal work, fire escapes, fences, tanks, etc.; how to repair spalled building walls, acidproof and waterproof floors, in fact it gives the solution to practically every maintenance problem around a plant. This booklet is proving of invaluable assistance to maintenance men everywhere. If you do not have your copy of "Over the Rough Spots" write today—IT IS FREE—if your request is made on your company letterhead.

STONHARD RESURFACER

IS THE MOST PRACTICAL MATERIAL TO REPAIR FLOORS LIKE THESE

It permanently fills and smooths shallow as well as deep ruts, holes and breaks in every type of industrial floor and platform. No chipping or chopping of the old surface. No heating of materials.

ANY HANDY MAN CAN MAKE THE REPAIR

to concrete, wood, brick, asphalt or composition surfaces with **STONHARD RESURFACER**. No delay nor production hold-up and floors are

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For the Active Needs of the SOUTH'S Electrical Development...

Through its Southern distributors' warehouses, General Cable brings to the needs of the South's electrical progress a complete service. Wires and cables for every electrical purpose—utility, industrial, and domestic. Each in its present standard specification embodies the ultimate technical advance resulting from scientific research. Ask your jobber for literature on any General Cable product in which you are interested.

Specify and demand these quality products.

GENERAL CABLE CORPORATION

OCTOBER NINETEEN THIRTY-FOUR

3

"THE 'CATERPILLAR' DIESEL SAVES US \$123.50 PER MONTH ON FUEL"

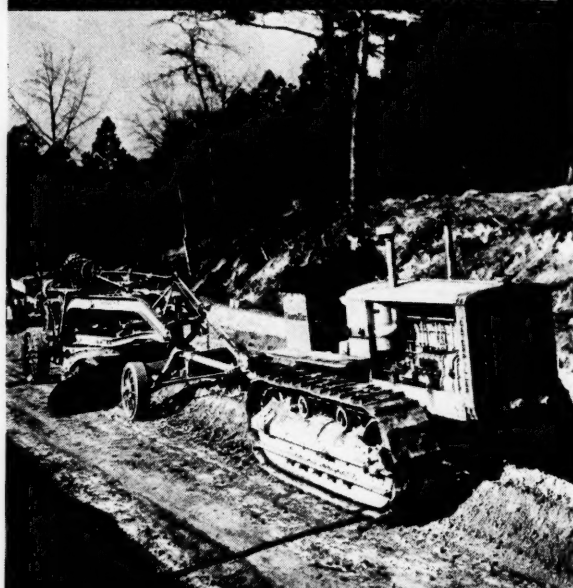
—SAYS MR. A. T. LOCK OF BORGER, TEXAS. HE ADDS: "— BESIDES, IT PULLS A MUCH HEAVIER LOAD THAN OUR FORMER GASOLINE TRACTOR."

Less cost—more work accomplished—such results explain the rapidity with which America is going Diesel with "Caterpillar." Power users long hoped for lower fuel cost—"Caterpillar" Diesel has brought it to them, together with simplicity of design, ease of operation and maintenance, sturdy dependability. A full-Diesel type engine, with individual interchangeable fuel injection pumps and valves, and an all-weather sure-starting system. Ask the address of an owner—now nearly 4000 of them—from whom you can learn, first hand, why and how the "Caterpillar" Diesel leads the field. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



Pushing a bulldozer, this "Caterpillar" Diesel Tractor lowers cost for the Dick Company on its contract near Audenried, Penna.

AMERICA GOES DIESEL



With a "Caterpillar" Diesel Fifty Tractor and a "Caterpillar" Road Grader, Bibb County, Georgia, is today building better roads at less cost than ever before.



Four "Caterpillar" Diesel Tractors serve the McKinley Company, one of the contractors building the Oakland, Calif., low-level tunnel road. Work goes on twenty-four hours a day.

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**OCTOBER
1934**

Volume CIII No. 10

MANUFACTURERS RECORD

Devoted to the Upbuilding of the
Nation Through the Development
of the South and Southwest as the
Nation's Greatest Material Asset

Published Monthly

by the

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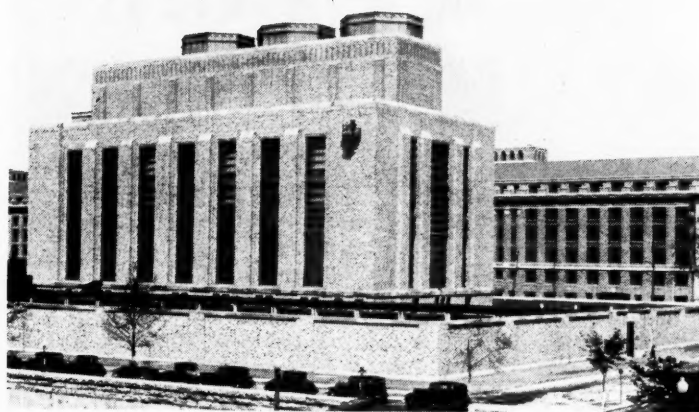
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**PUBLISHERS DAILY CONSTRUCTION BULLETIN AND
BLUE BOOK OF SOUTHERN PROGRESS**



Member
A.B.C.

OCTOBER NINETEEN THIRTY-FOUR



A Central Heating Plant

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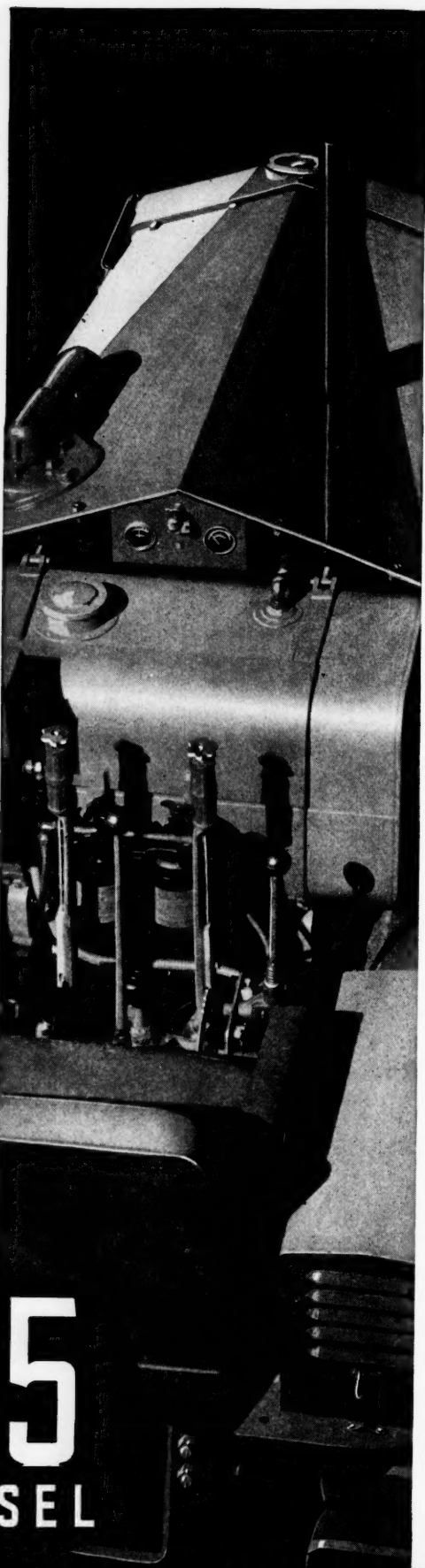
A NEW DIESEL TRACTOR WITH

Six cylinder

ENGINE...AND

electric STARTER

*Write us for
complete speci-
fications and
details of the
26 features of
Cletrac design.*



35

DIESEL

NOW, a full diesel, six-cylinder Cletrac in the medium power class, equipped with electric starting. Cletrac principles of design and construction that have proved so satisfactory in the Cletrac 80 Diesel and the Cletrac 35 gasoline tractors have been embodied in the Cletrac 35 Diesel. It is a "proven" tractor, whose dependability may be relied upon. The six-cylinder engine of the Cletrac Diesel 35 gives a steady flow of power that will enable you to go places with big loads. The smoothness of operation of a six-cylinder engine eliminates harmful vibration and gives you a long period of economical and dependable tractor performance. Electric starting gives you a "head" start on your job, because it requires less starting time and consequently permits more working time. All you do is turn a switch and you are ready for action.

THE CLEVELAND TRACTOR CO.
Cleveland, Ohio

CLETRAC

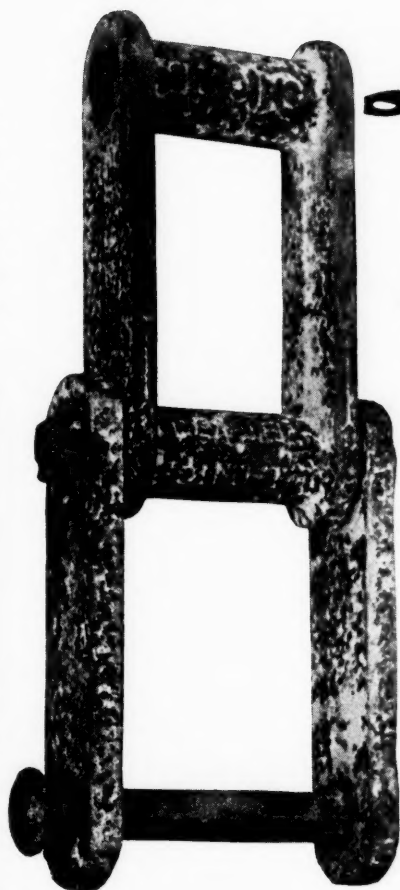
Crawler Tractors

THE *only* CRAWLER TRACTOR WITH CONTROLLED DIFFERENTIAL STEERING

PROMAL CHAINS • BUCKETS

Last Longer

Promal, the tried and proved, stronger, longer-wearing metal for cast chains, buckets, etc., is proving itself, by actual performance in fertilizer plants. Its qualities of greater strength, and resistance to abrasion and corrosion, are showing up in longer life in severe service.



This sample of Link-Belt No. C-102-B Promal Chain was taken from bucket elevator handling fertilizer materials at the Independent Manufacturing Company, Philadelphia.

Since its installation in 1930, this chain has carried approximately 45,000 tons of material. Not once during this time has this chain parted or given the slightest trouble, and it is probably good for several more years' service before it will even be necessary to replace the original pins.

This is typical of the performance reports of Promal Chains and Buckets, constantly being received from many sources.

LINK-BELT COMPANY

4967

PHILADELPHIA CHICAGO INDIANAPOLIS SAN FRANCISCO TORONTO
Atlanta 511 Haas-Howell Bldg. Baltimore, Md. 913 Lexington Bldg.
Dallas Warehouse 413 Second Ave. New Orleans 619 S. Peters St.
Offices and Distributors in Principal Cities

LINK-BELT



Sprocket Wheels



Screw Conveyor



Silent Chain Drives



Take-Ups



Belt Conveyors



Car Spotters



Bucket Elevators



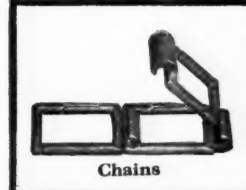
Safety Collars



Friction Clutches



Elevator Buckets



Chains



Bearings



Roller Chain Drives

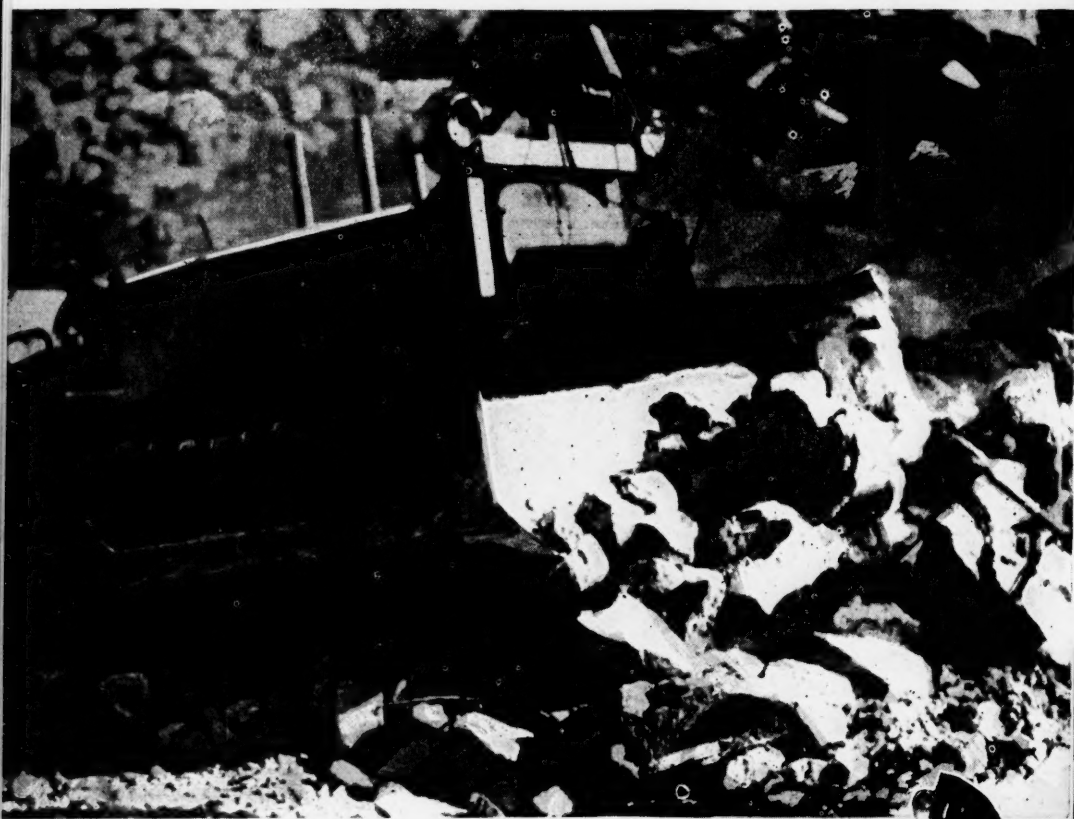
See Our Exhibit at A Century of Progress, General Exhibits Building No. 1.

TWO REVERSE SPEEDS

make a big difference in

BULLDOZING

The Model "L" was the first tractor with two reverse speeds—1.45 and 3.07 miles per hour—a real aid to bulldozing. The Guy F. Atkinson Company recognized the difference when they purchased 9 bulldozer equipped "L's" for their 1,700,000 cubic yard San Gabriel high line job in southern California—"One of the toughest pioneering jobs ever attempted with tractor equipment," said assistant manager Ray H. Northcutt. "The 'L's' have more than lived up to our expectations."



Just Bulldozing to the "L"

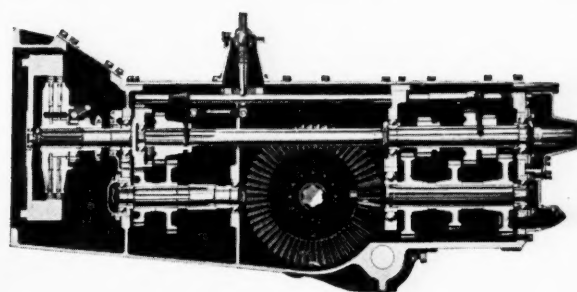
This may be rock to most tractors, but it's just more bulldozing for this model "L" at Bonneville Dam. "Our decision to buy A-C tractors was made only after a very thorough investigation and comparison with other leading makes," said Mr. Northcutt. "We can recommend them to any contractor with a hard job ahead of him."



She Sure Can "Take It"

"The 'L' sure has guts," said general master mechanic C. E. Ferguson to Mr. Northcutt. "These six we have here on this Bonneville Dam job are on their third big project. Each one of those big jobs has been mighty tough excavating, too."





Carburized Gears

Bulldozing is tough on gears, but not A-C gears. They are made of cut nickel steel, carburized and hardened to stand the toughest work. An expensive process, but the longer life proves the value of better quality. All loads are carried on extra large ball and roller bearings. The Model "L" was also the first tractor with six speeds forward, giving it a speed range from 1.94 to 6.47 miles an hour.

ke It"

said gen-
E. Fer-
"These
Bonneville
d big pro-
e big jobs
excavating,

"A Splendid Record"

"These tractors have made a splendid record in performance," said Mr. Northcutt, "and have shown very low operating and maintenance costs. Our repairs have been at a minimum and we are well satisfied with the service of the manufacturer... and their agents. We paid a slightly higher price for our tractors than that quoted by other makes and have never regretted our decision."



The Easter Battle

Sixteen inches of clearance and powerful traction made a whale of a difference Easter morning when the flooding Columbia River tore at the upstream cofferdam. Forty-eight hours of battle and the Model "L's" saved a big loss. They paid for themselves many times over in that short space of time. The Atkinson Company has a 898,000 cubic yard contract on the Bonneville, Oregon, navigation and power project.

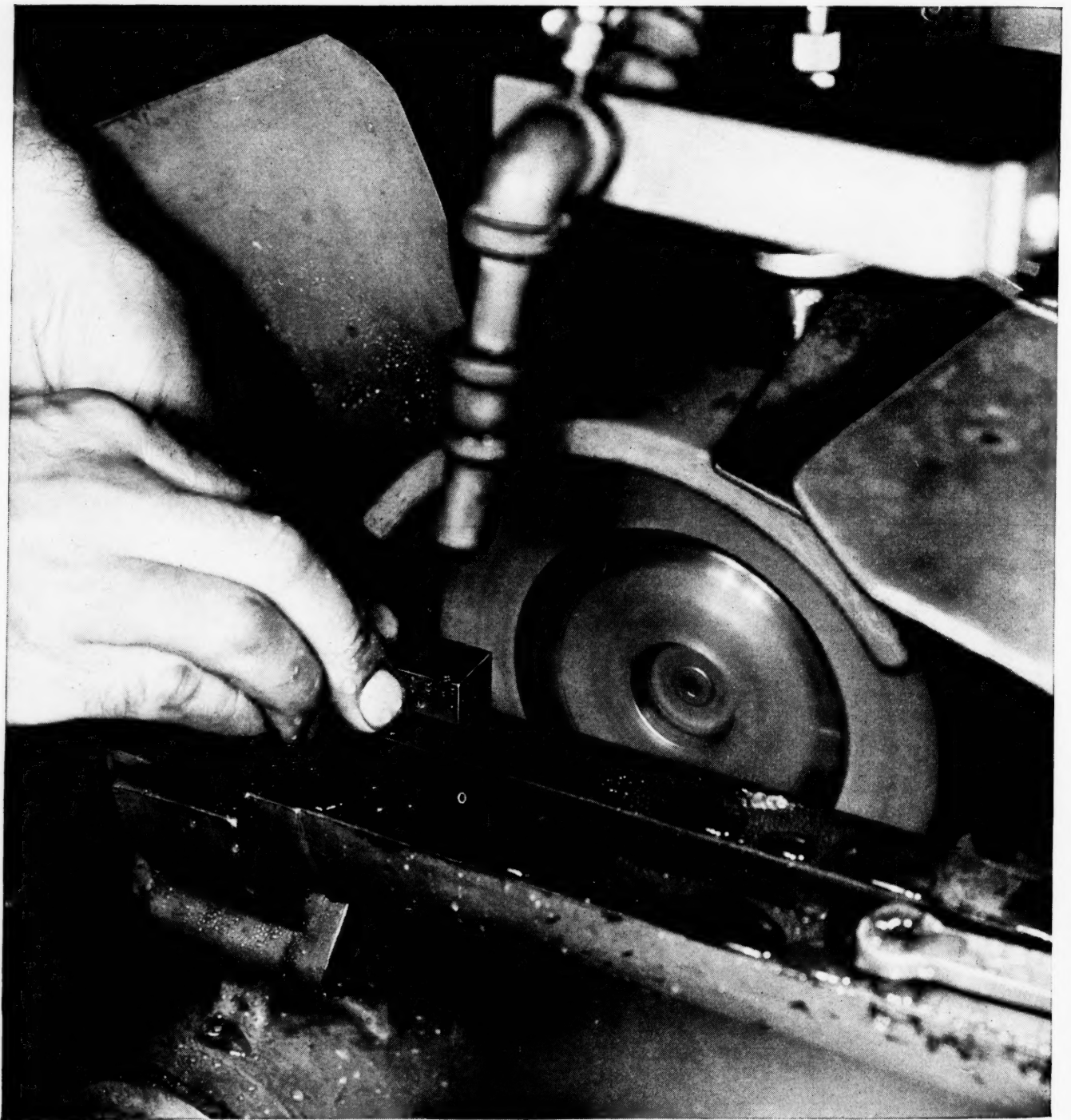
Your money is hard earned money and you want full value for every dollar you invest in machinery. Before you buy another tractor or road machine find out the "More Value" difference between A-C equipment and other makes. Then you will realize why so many contractors have standardized on A-C tractors and road machinery. There is a unit for every job—track-type and wheel-type tractors, power controlled graders, hand controlled graders, elevating graders, speed patrol graders, power units, track wagons and wagon tracks.

ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE, U. S. A.



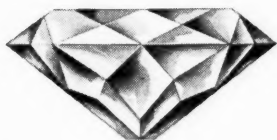
ANNOUNCING

A sensational New Wheel



THE NEW DIAMOND WHEEL WILL BE SHOWN and demonstrated under actual grinding conditions at The Carborundum Exhibit, National Metal Congress, October 1st-5th.

for shaping and conditioning hard cemented carbide tools



IT'S MADE OF CRUSHED DIAMONDS!

CARBORUNDUM Research Laboratories announce a new wheel made from genuine, crushed South African Diamonds—a wheel that through long exhaustive tests has shown startling results in grinding hard cemented carbides.

On pure cemented carbides this new wheel is approximately thirteen times faster cutting—removes thirteen times more stock per minute than previous specially developed abrasive wheels.

In the grinding of mounted tips—that is grinding the cemented carbide as well as the steel tool stock—the new Diamond Wheel shows four times greater stock removal per minute.

The diamonds used are small South African gems too small and off-colored to be considered precious. They are crushed—accurately graded to comparatively coarse, 90 grit; the fine, 220 grit; and extra fine, 400 grit—and bonded with a special bond developed in our laboratories. The result is a wheel that cuts with astonishing speed.

The new Diamond Wheels require no dressing—in fact, it is impossible to dress them. The thousands of

tiny diamonds that stand out like so many miniature cutting tools do not break down or crush. They stay permanently sharp precluding the need of dressing—even if it could be done.

These wheels are made to micrometer exactness—balanced to within a fraction of a gram. The new wheel is used with water—wet grinding—and it produces clean, true, straight, un-nicked edges and truly flat tool faces—beautifully finished. Overheating is eliminated—in grinding, the tools aren't even uncomfortably warm.

It is important to note, that by finishing with the fine grit wheel, the long, tedious, costly operation of lapping is eliminated.

Indications are that the Diamond Wheel can be effectively used also in many and various fields on materials approaching in hardness the cemented carbides. Studies of these applications are now being made.

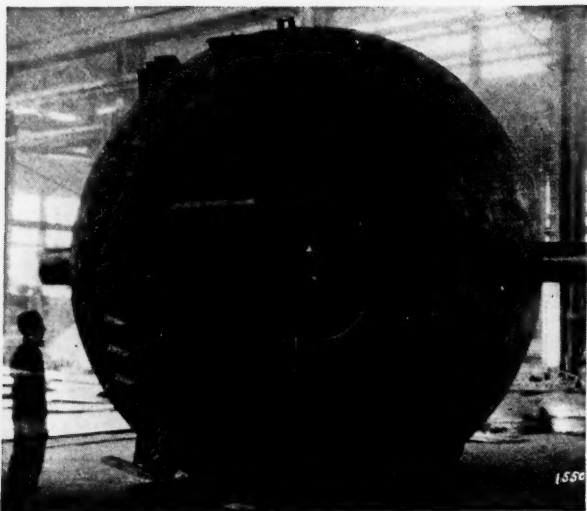
Limited stocks are now available in six and seven inch diameter wheels in the three grits.

Again Carborundum makes an important contribution to industry.

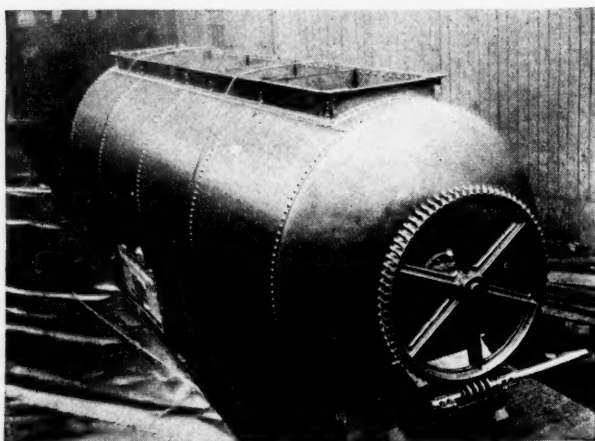
THE CARBORUNDUM REG. U. S. PAT. OFF. COMPANY

Niagara Falls, N. Y.

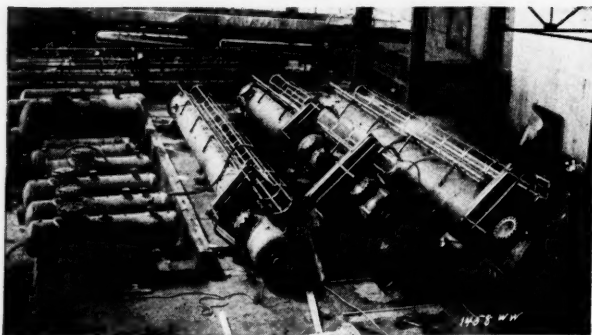
Canadian Carborundum Co., Ltd., Niagara Falls, Ont. Sales Offices and Warehouses in New York, Chicago, Boston, Philadelphia, Cleveland, Detroit, Cincinnati, Pittsburgh, Milwaukee, Grand Rapids; Toronto, Ont. (Carborundum is a registered trade-mark of The Carborundum Co.)



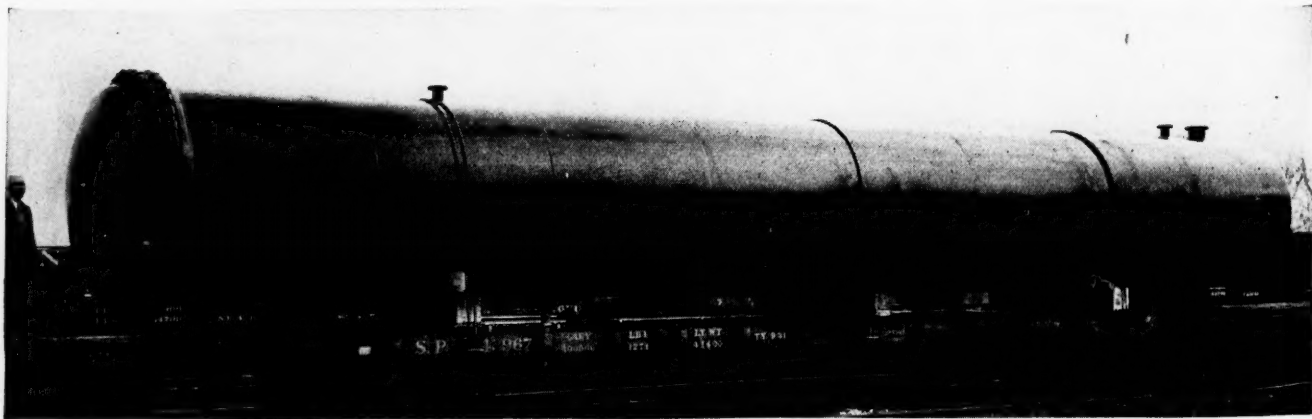
Globe Rotary Digester for Pulp and Paper Process



Crystallizer for Raw Sugar Manufacture



Group of Pressure Vessels for Export



Creosoting Cylinder

PRESSURE VESSELS AND FABRICATED PLATE WORK . . .

Of Carbon, Alloy or Clad Steel
Welded or Riveted

Combustion Engineering offers complete facilities for fabricating all types of pressure and vacuum vessels to your specifications, of carbon, alloy or clad steels, welded or riveted.

Our shops are fully equipped with machinery and appliances designed for this work, including a 300,000-volt X-ray apparatus of the latest type. Another item of particular importance is the specially constructed annealing furnace for relieving stresses incurred in fabrication. This furnace is capable of handling the largest vessels that can be shipped.

Hundreds of C-E-built vessels are now serving a wide range of applications. Some of these vessels, constructed in the Chattanooga plant of our subsidiary, The Hedges-Walsh-Weidner Company, are shown in the accompanying illustrations.

*Fabricated to Your Order—Annealed, X-Rayed,
Tested*

**COMBUSTION ENGINEERING
COMPANY • INC.**

200 MADISON AVENUE

NEW YORK, N. Y.

A-186

REX

CHAIN

FOR EVERY DRIVE & CONVEYOR

FOR EVERY PLANT AND MACHINERY USE . . .

REX



ROLLER CHAIN

The most highly finished chain on the market today for long service and low cost on high speed drives.

REX



CHABELCO CHAIN

A strong, long-wearing chain. Built with the famous Unit Link. For heavy duty drives at somewhat slower speeds—also in conveyor sizes.

REX



DUROBAR

An improved combination chain—the block link of either malleable or Rex Z-Metal—the latter the strongest, most wear-resisting metal cast in chain.

REX



GRIPLOCK

In malleable. The Griplock joint makes it a stronger chain—size for size and link for link—also cast in Z-Metal for longer, harder wear.

REX



UNICAST

The one-piece link—roller cast in place—makes it the most efficient malleable chain ever offered for eccentric loading on double strand conveyors.

REX



SNAKE CHAIN

A malleable chain that can flex in short radii in any direction—will help on many conveyor problems.

OTHER REX CHAINS

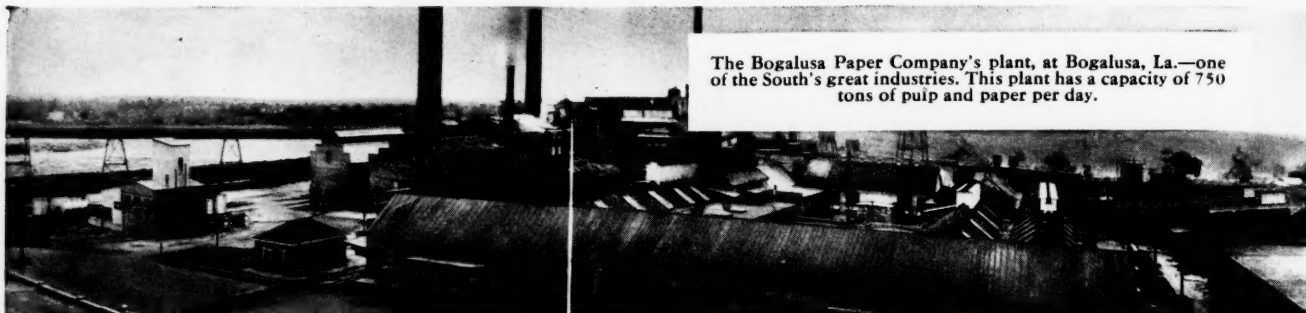
The Chain Belt Company also makes many other chains in malleable, Z-Metal, Steel and Combination for every type of service—and sprockets of all types—take-ups—set collars—buckets. Write on the type that interests you.

CHAIN BELT COMPANY

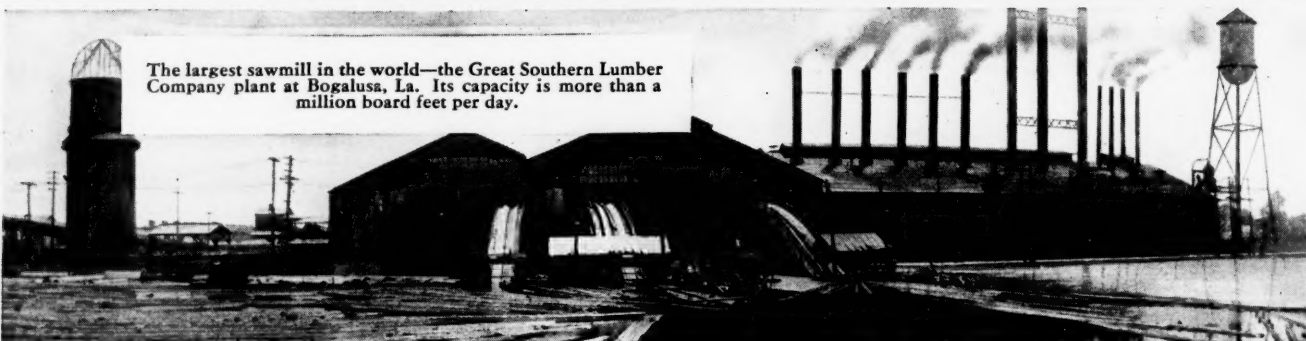
1021 W. Bruce St. MILWAUKEE, WIS.

CHAIN BELT COMPANY

CHAIN & BELT CONVEYING



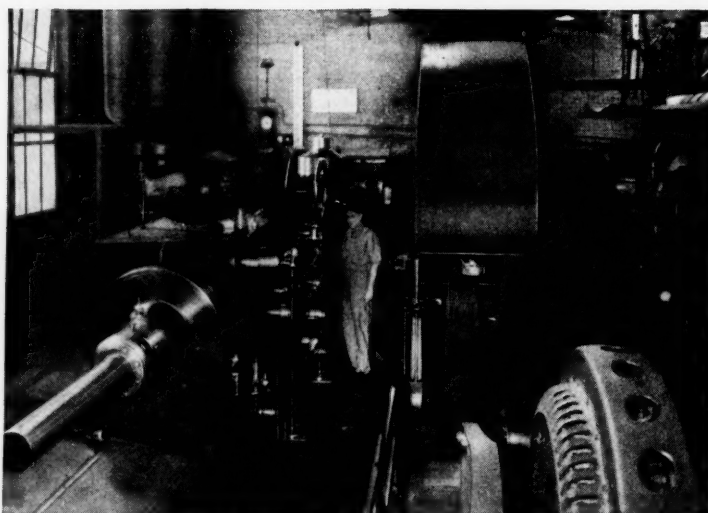
The Bogalusa Paper Company's plant, at Bogalusa, La.—one of the South's great industries. This plant has a capacity of 750 tons of pulp and paper per day.



The largest sawmill in the world—the Great Southern Lumber Company plant at Bogalusa, La. Its capacity is more than a million board feet per day.

BOGALUSA CUTS MAINTENANCE

*Operating expenses materially
Southern Lumber Company and*

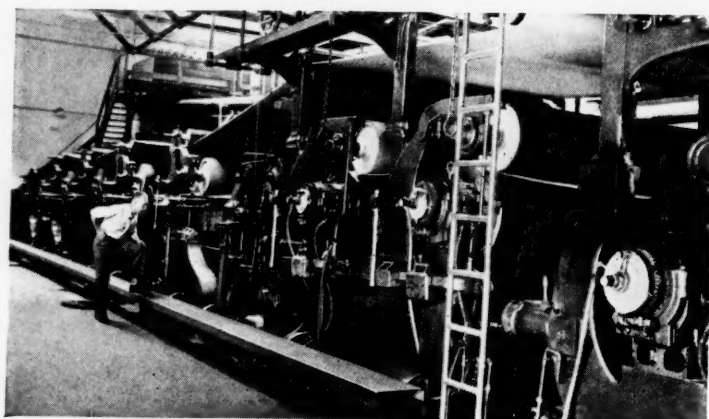


The largest sawmill engine in the world. It has a flywheel 26 feet in diameter, with a driving face of 84 inches. 540 hides were required to make the belt for this engine.

A GAIN Gulf scores definite economies in one of the country's leading paper mills! Through the use of Gulf lubrication and engineering service, the Bogalusa Paper Company have materially reduced their maintenance costs and have lowered their lubricants costs per ton of paper produced by 26%. In addition, the management of this plant states that there has been an over-all improvement in machine operation throughout the mill since Gulf lubricants were adopted.

Leading mills throughout the country report that five important savings are resulting from the use of Gulf lubricants for their machinery: decreased power consumption, lower maintenance costs, less "broke," increased production and better texture in the finished product.

If you are not using Gulf lubricants, may we suggest that you discuss in detail with a Gulf engineer just what improvements might be made in the lubrication and operation of your paper making equipment? He can be of real assistance to you.

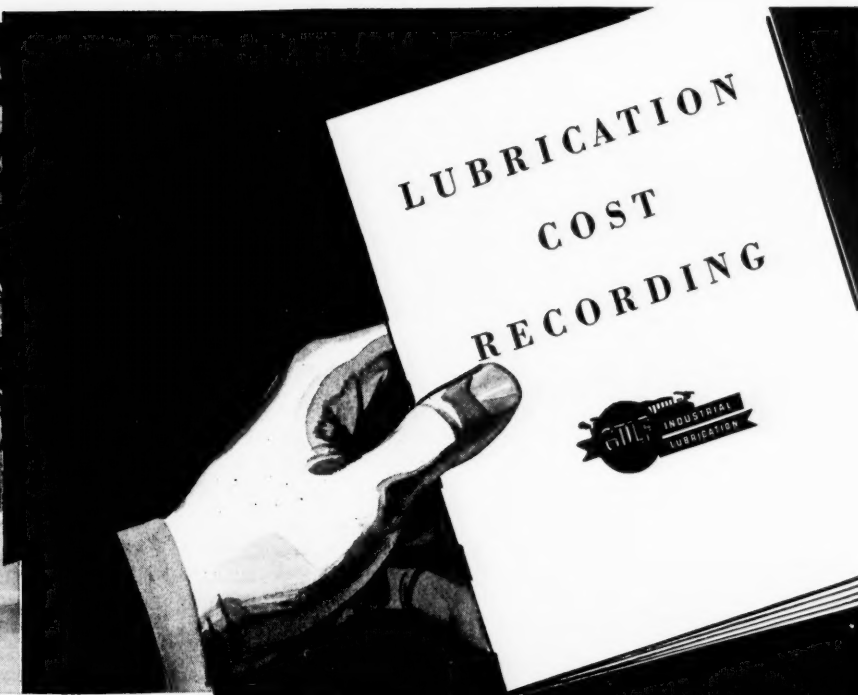
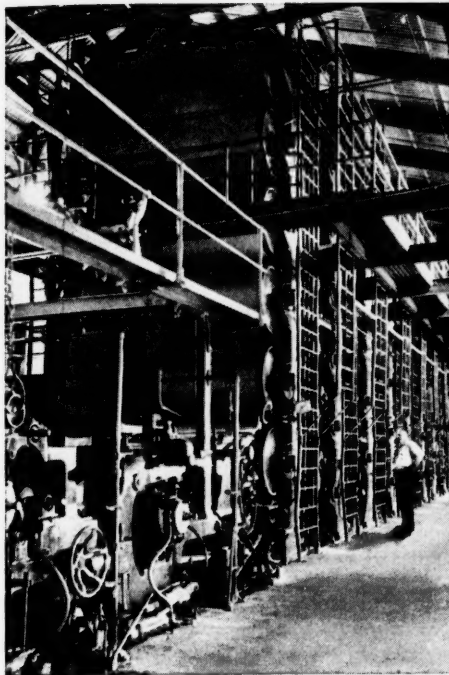


The "wet end" of No. 1 Paper Machine—where the formation of the sheet of paper begins. Gulf supplies the right, scientifically selected lubricant to meet the high temperature and moisture conditions encountered here.

GULF REFINING COMPANY
PITTSBURGH, PA.

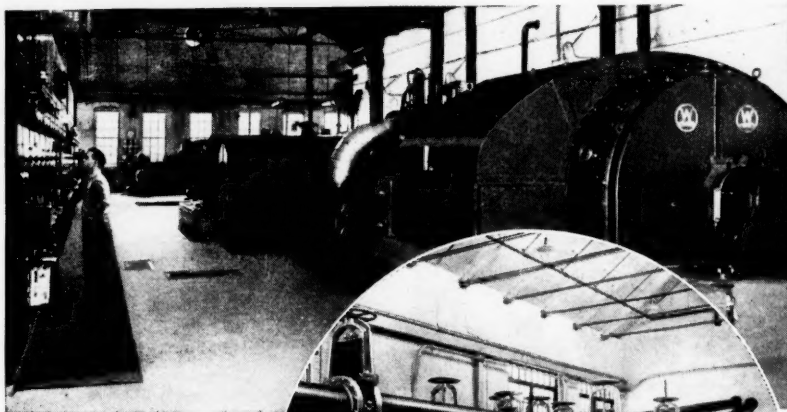
District Sales Offices:
Boston New York Philadelphia Atlanta New Orleans
Houston Pittsburgh Louisville Toledo

MANUFACTURERS RECORD FOR



COSTS WITH GULF!

reduced by Gulf lubrication at Great Bogalusa Paper Company Plants . . .



The power plant—which supplies power for all the paper making machinery. Gulf lubricants keep these steam turbines continuously "on the line."

Gulf lubricants protect the bearings of these Jordans from excessive friction and wear.



To determine the influence of lubrication on operating costs, it is first necessary to set up a simple system of cost record keeping which will show the effect of lubrication on related plant cost items. This brief pamphlet will help you set up a simplified lubrication cost keeping procedure which will fit your plant.



OCTOBER NINETEEN THIRTY-FOUR

GULF REFINING COMPANY M.R. 10
3800 Gulf Building
Pittsburgh, Pa.

Please send me, without obligation, the pamphlet "Lubrication Cost Recording."

Name.....

Title.....

Company.....

Address.....

THE T V A

IN A NUT SHELL



In an area abounding in coal, having existing electric power producing capacity far in excess of the current demand, the Tennessee Valley Authority is launching a water power program of great magnitude.

Refusing, apparently, to face the fact that the true cost of hydro power is higher than that of steam power, it has built one dam, is building two, will start soon on four more, and expects to build still more later for the generation of power for which there is no present market except among customers of existing private companies.

With the taxpayers footing the bill to the tune of one-half billion dollars, TVA proceeds with its program whose consequences, inescapably, will be annihilation of coal markets, shut down of many mines with thousands of miners made jobless, and large losses of revenue to railroads already hard put to make both ends meet.

Appalachian Coals, Incorporated, marketing agency for one-sixth of the nation's commercial bituminous coal, believes that knowledge among the taxpayers of America of the true facts concerning this TVA program will convince them that it not only is not a square deal, but that it smacks of all that is repulsive to Americanism.

Shortly ACI will issue a pamphlet detailing the facts concerning TVA, which should be in the hands of every conscientious taxpayer and voter. You are invited to write for a copy.



APPALACHIAN COALS, INCORPORATED
TRANSPORTATION BUILDING
CINCINNATI, OHIO

• Manufacturers Record •

REASSURANCE STILL NEEDED

WE referred in these columns last month to some of the things that might be done to restore confidence. We have been told they were constructive suggestions. Some of them would involve putting aside a number of the ideas that have been tried and found unworkable, but which are being kept up.

It is unlikely that the present majority of New Dealers will be materially reduced in the next Congress, which meets in January, and if the pump will not run by the momentum obtained from previous priming, the injections will be increased in number and quantity.

In the meantime the President has spoken.

So far priming the pump has not accomplished its purpose, which was to restore confidence.

There is a practical fact which stares us in the face and renders futile generalities uttered and many of the artificial boosts that have been tried. That fact is business must believe it sees profits in its ventures before it will proceed.

All the pump priming and political assurances in the world won't convince people who have to pay the bill, unless they believe that priming will bring progress, and so far the evidence has been against it. The artificiality of the schemes has been more impressive than the permanent benefits to be gotten from them.

We have been told that to ask the President to reassure business is out of order, because the President is not supposed to tell business how to make a profit.

Surely he might have told business that the control the Administration has set up in many ways has been largely a failure.

Surely he might have told the country that further inflation is not a part of his program and that he is against it.

Surely he might have recommended the abandonment of section 7-A because it has been a producer of strikes and a flat failure throughout.

Surely he might have said he would reduce drastically the expense of government.

Surely he might have promised to abandon quickly further government competition with private industry and said that the encouragement of private industry from now on would be his chief aim.

These requests are reasonable, because they point the way to progress. The present course is leading in the opposite direction.

This does not mean a return to fevered ways of the past. Sane people recognize the mistakes that have been made and will be inclined to avoid them in the future. Whether they do or not, arbitrary control of farmers and of business won't bring about reform. Illusory, fantastic thoughts of "free social cooperation" should be thrown out of the window and the advice of practical minds called upon to help in restoring the confidence the country requires to go ahead.

Some manufacturers already are saying that the codes, largely set up by industry it is true, and industry made a grave mistake in many of the things it set up, will have to be remade to include a larger share of free competition and permit the establishment of new enterprises which they now bar. The MANUFACTURERS RECORD opposed from the time the first code was adopted the idea that no new mill, no new machinery could be bought to extend any operation without the consent of code authorities who, forsooth, are the competitors of the man who would venture in the expansion of his business. Things like that won't go. They are unworkable whether industry made them or the NRA, and we blame industry principally. New development would stop and has stopped because of such ideas.

Chiselers were the bugbear of the construction industry, metal trades and many other lines. This publication did its part in urging that something be done to curb the outrageous and unfair practice, but better have chiselers than attempt to control the action of free men who want to develop our resources and benefit themselves by so doing.

That is the way to progress. That is the way to restore confidence. It is not necessary to call attention to the vast array of mistakes that have

kept the country in the doldrums, to see clearly that we have abandoned too many fundamental rules that have made this country in the past the most progressive in the world. These mistakes glare at us.

Now we are hearing about "nationalization of credit" through a Central Bank, with all that it may imply, not only as further competition with private business by putting individual banks in the background, but with unlimited governmental borrowing power and the credit resources of the country under political control.

We are faced with the extension of government power projects that will run to figures so vast they stagger the imagination and the prospect of a constantly increasing dole, although approximately 16,000,000 persons are being fed.

One scheme after the other, many of them interfering with those still being tried, while practical men know that private industry, if encouraged by the head of government, will go about filling a demand for materials and supplies that has been dammed up for five years, and in filling which this country will be put on its feet.

Fortunately, some of the very Senators who advocated most strongly the control of crops now ask that the control be withdrawn. Maybe some others will awake to the enormity of the moves that have been tried and their terrifying expense and consequences.

DOMESTIC RUBBER PRODUCTION

ANOTHER new crop and industry is in prospect for the South. Following the rapid progress in developing a domestic tung oil industry in the South, the manufacture of newsprint and white paper from Southern pines and the growing of pulpwood pine trees as a crop, Federal scientists and private interests are speeding up rubber plant experiments mentioned in these columns some time ago which open possibilities of far-reaching importance in the growing of rubber in the South. Both paper making and rubber production tie in with the expansion of the chemical industry in the Southern States.

After investigating practically every important plant used for commercial production of rubber throughout the world, the Agricultural Department has singled out as the most promising sources for domestic rubber—goldenrod, which grows profusely throughout the South; guaycule, a shrub which grows well in the Southwest; and Hevea, the rubber tree of the tropics. Goldenrod is regarded as the most likely to develop commercially. Extensive experiments have been carried on by the Edison Botanic Research Corporation and the transfer to the Agricultural Department recently of the Edison collection of goldenrod selections has given new impetus to the research program.

Rubber of good quality has been made from goldenrod, the Department points out, but the details of extraction and manufacture have not been developed

sufficiently to produce rubber on a commercial scale nor equal to the imported product. With present knowledge, it would not be possible to make rubber from goldenrod at prevailing low prices of about 15 cents a pound but if the price should ever be forced as high as it was in 1923-27 under the Stevenson rubber control attempt, the United States will be in a fair position to produce a good share of its rubber requirements.

Guaycule, high in rubber content, is a sage-like shrub native to Mexico and southern Texas. Some years ago the MANUFACTURERS RECORD called attention to its possibilities for creating a domestic rubber industry. For maximum yields, guaycule is harvested only every fourth year. Because the whole plant is harvested it is necessary to have a large area and a succession of plantings to insure a continuous harvest and make it commercially profitable. It is a long-time, large-scale rotation crop.

Other sources of rubber which could be developed in this country, if the price were high enough to warrant it, include the tropical Hevea rubber tree. The Department now has 30,000 of these trees growing in Florida. Another rubber tree which grows well in Florida is the Castilla.

In the goldenrod experiments conducted by the late Thomas A. Edison and Agricultural Department scientists, some goldenrod specimens produced more than 12 per cent rubber. One species yielding from 4 to 6 per cent rubber is considered promising because of its greater leaf production. Many problems remain to be worked out before goldenrod is assured to be a successful source for commercial production of rubber. With the same scientific effort that is applied to the crossing of such plants as wheat and corn it seems reasonable to expect results with goldenrod far more promising than anything yet achieved. Department officials emphasize that the goldenrod experiments have not progressed far enough to warrant anyone going into the business of growing or collecting goldenrod to sell for making rubber. They also point out that they have no goldenrod plants for distribution.

In experimenting with goldenrod many problems have arisen, which appear in almost every case when a plant is domesticated. There is a striking change in growth habit of the plants. Most of the plants studied for rubber production have been grown in the South, either in Florida or South Carolina. Experiments at Charleston give some indication of the effect of soil and cultural conditions on the production of rubber in goldenrods. Plants similar in every respect were grown on high sandy soil and low, moist soil. Those on the high land had a higher percentage of rubber in the leaves but because of the more vigorous growth on the low soil these plants gave a larger yield of rubber per plant.

Goldenrod can be made to grow tall or short; bushy or open, but it has not been discovered how these plants manufacture and store rubber. Neither is it clear as to the conditions under which the greater amount of rubber is produced.

There are two general processes for extracting rubber from the plants. With the mechanical method, used with guaycule in Mexico and California, the

plants are ground up and macerated in a pebble mill. The rubber gathers into small lumps which can be separated from the powdered woody material by flotation in water. The other method is to dissolve the rubber out of the plants by chemical solvents. This is the method best adapted for use with goldenrod and, therefore, allies it with the chemical industry which is rapidly developing in the Southern States.

SOUND LEADERSHIP

SEVERAL weeks ago the United States Steel Corporation announced it would begin extensive alterations of some of its plants. During the past three years little improvement had been made in its facilities and the betterments now under way were necessary to secure greater efficiency in cost of production to meet requirements of the trade as to quality of products. The full significance of the important modernization step by the Steel Corporation has not been generally realized in the prevailing uncertainty and doubt as to the attitude of the Government toward business.

It is not an isolated case. There is evidence on all sides of the need for modernization in American industry. All industry in more or less degree is trying to do business with wornout or obsolete equipment. More than half of the productive capacity of existing plants is in that classification. No less than \$30,000,000,000 of work and materials for plant renovation and improvement is in prospect unless we are to experience a progressively mounting cost of production as equipment further deteriorates.

Alert business management is keenly aware of the need for replacements and repairs. It is hesitant to proceed with modernization programs because of uncertainty as to what the Government will do. Business executives are fearful of further Federal control measures and threatened increased Government competition. This prevents commitments for further orders and causes a lag in manufacturing, breaking the continuity of business activity. They are confronted with rapid changes of regulations and demands by innumerable branches of the Government which keep them stirred up and never quite sure that a decision today will not be recalled tomorrow. They are confronted with organized labor's intimidating strikes to force a closed shop in all American industry, with the Government feeding the strikers out of taxes paid by concerns and individuals which union labor is seeking to dominate. Organized minorities seeking control through strike-force, or entrenched bureaucratic domination have no place in America's conception of liberty and justice. The New Deal must be a Square Deal.

The action of the Steel Corporation in making substantial expenditures for improvements, the Ford Motor Company's investing at least \$12,000,000 for new steel plants and of other interests which are beginning modernization and expansion programs with the attendant employment of labor, are of more practical benefit in reviving confidence than any number of academic theories.

CAUSE AND EFFECT

L. F. LOREE in this issue gives the cause of the held-up progress of America. He says that "governmental activity in private business has rapidly increased; private initiative and the freedom of spirit that goes with it, virtually has been suspended." And further, "frankly facing facts, this is a very critical period in the history of the United States, for the nation today is in the incipient stage of an industrial, economic and social revolution, and the first duty of the thoughtful citizen is to realize the gravity of the present situation."

This analysis of present day problems is by an executive of keen insight and with a background of broad experience over many years as an industrialist. There is probably no one better qualified to view the present situation in its true light.

We wonder sometimes whether the average citizen, the man on the street, who has been patient but so greatly confused in recent years, does recognize the "gravity of the present situation." It is not a myth that can be cast aside as the bad dream of a disordered mind. The opinion is held universally by the men who have had part in America's development that we are proceeding along the wrong road. Such opinions cannot be dismissed with a word, nor can the fair questions of such men be answered with meaningless phrases about "the more abundant life." You cannot answer them by reciting that such critics "disregard human rights and think only of property rights." The very fact that the idealists who are by chance in power give voice to such inadequate rejoinders indicates that their thoughts are not based on solid premises. As we have stated before, property rights are so interwoven with human rights that they cannot be reasonably segregated if the nation is to progress. Is it intended to stigmatize everybody who ventures to regard property rights as something to be respected?

Government competition that undermines confidence and the safety of private investment disregards human rights and property rights.

Self-Government in industry virtually has been a pretense under NRA and we are rapidly seeing a tightening of bureaucratic control over private business and initiative, a usurpation of individual rights.

It is most appropriate and timely that Mr. Loree should say:

"We must demand a continuance of an economic order based on the individual rights and liberties guaranteed by the Constitution and at the same time oppose any violation or distortion of that Constitution to achieve Socialistic or Facist objectives in our governmental, economic and social system."

We shall have ourselves to blame if we permit that to which Washington referred in his farewell address, and which it quoted in this most interesting article. "But let there be no change by usurpation—it is the customary weapon by which free governments are destroyed."

DEMOCRACY OR DESTRUCTION

By

L. F. Loree

THE American employer today, pondering over the general economic situation about which there is so much confusion, is confronted with these self-evident facts:

Governmental activity in private business has rapidly increased; private initiative, and the freedom of spirit that goes with it, virtually has been suspended; prices have been artificially affected; redistribution of wealth and income is felt by many to be the principal objective; the gold standard has been abandoned, silver nationalized and the dollar devaluated; "planned economy" is becoming more than a phrase, and as a consequence of all this, there is wide unemployment and its shadow, the dole.

To clarify this uncertain state of the Union and to cast about for a remedy for these evils, let us go back in some degree to the wise practices of our Fathers.

* * *

SOME of the recent changes in Federal and State constitutions should be stricken out.

We have already repealed the Eighteenth, or liquor prohibition, Amendment. The Sixteenth Amendment, authorizing an income tax, should be clarified. The graduated income tax discriminates between a levy upon property and a levy upon the income from property. The Amendment should be clarified so that the tax upon all incomes would be ratably the same as it is upon property itself and the discrimination of its graduation abolished. It would be possible to do this by Congressional enactment. It would be safer to do it by Constitutional amendment.

The time has come when every thinking citizen should realize the failure of the Seventeenth Amendment, providing for the election of United States Senators by direct popular vote, and return to the original terms of the Constitution, which originally provided for their election by the Legislatures of the States.

It is an undisputed fact that the greatest strides in statecraft and in furthering the public weal were when the Senate dominated the Washington scene. The indirect election enabled a State to choose from among its most distinguished citizens men who would honor both the

State and the Senate. Senators under the old order could concentrate on the great issues of the day, avoid demagoguery and give their judgments and not merely their voices to the State and the Nation. Senators usually were returned term after term, thus creating a body of older statesmen like the great triumvirate—Webster, Clay and Calhoun—and well within our own memory, Hoar of Massachusetts, Allison of Iowa, Platt of Connecticut, Aldrich of Rhode Island, Spooner of Wisconsin, Williams of Mississippi, and Gorman of Maryland. Popular election is no guarantee of fitness and the Senate today stands far below the level of ability, integrity and achievement of the Upper House of previous generations. The results of the Seventeenth Amendment have not justified the hopes of its advocates. Scandals made it evident that money power in politics was not abolished. It has strengthened the hand of the boss and has opened wide the door to the demagogue and the manipulator of Federal patronage. In view of the lowered estate of the Senate as constituted today, we should strive to restore this once-honored institution to its proper position in our government.

We have before us the proposed Federal Child Labor Amendment of 1924 providing that Congress shall have power to limit, regulate and prohibit labor of persons under 18 years of age. Up to January, 1934, the amendment had been adopted by 20 States. Since January, eight States have rejected the amendment. Its effect upon the youth of the nation is likely to be more harmful than was the Prohibition Amendment. The wide diversity of conditions throughout the country can only be met and controlled locally. The mounting problem of supervising the activities of the unemployed youth of the country, and the increasing cost of education of our youth, make it essential that the amendment be defeated.

* * *

WE should recognize that since the declaration of our independence 158 years ago, and the ending of the struggle to bring it about, the structure of our government has never been but once seriously threatened. We were, from the beginning, a nation of slave-holders, but this was regarded as a phase that all expected would pass

Threatened by False Prophets,
This is a Critical Period in the
History of the United States.
The Nation Today is in the Incipient Stage of an Industrial, Economic and Social Revolution and the First Duty of the Thoughtful Citizen is to Realize the Gravity of the Situation.
At First Many of the Remedial Schemes Were Experimental, But Pretense is Now Abandoned and in the Congressional Session Next January, the Main Battle of Americanism Against State Bureaucracy Will Decide Whether the Emergency Measures Adopted Shall Become Permanent Laws of the Land, or Whether We Shall Again Be Forced to Rise to Defend the Constitution.

* * *

away within a reasonable time. With the invention by Eli Whitney in 1794 of the cotton gin, the value of slave labor was greatly enhanced, and the question of slavery caused a recognized division of the interests of the sections until in 1861, when 12 of the Southern States sought to set up an independent government, resulting in a four years' war before the supremacy of the Union was fully reestablished.

WHAT steps can we take to preserve the advantages with which we started, and the phenomenal gains we have secured?

In the early days suffrage was largely governed by property possession. Only those with certain ownership might vote. The property qualification of suffrage failed through its own inherent weakness. For one thing, it is only three generations from shirt sleeves to shirt sleeves.

What we really should consider seriously is a suffrage graduated by education. While education not entirely synonymous with intelligence, it is sufficiently so to be used as a substitute for

it and the opportunities for acquiring it have been highly developed, and are open to all, whether through the public, parochial or private schools, night schools, business schools, private institutions, or individual effort.

There were 1,700,000 men taken in the draft during the World War; only 13½ per cent showed an intelligence equal to or above that of a 16 year old boy.

The data compiled by the United States Department of Education indicate that only 14½ per cent of the school children pursue their education after they finish the eighth grade and become eligible for the high schools.

The data compiled by the United States Department of Labor in 1910 indicated that 68 per cent earned less than \$15 per week, and no more than 5 per cent earned over \$1,000 per year. While since that date wages have greatly risen, there is nothing to indicate that the percentage relation of the workers has undergone any significant change, except as a political purpose was served.

The suffrage graduation might be worked out in a great variety of ways. The data so far collected seem to point to a conclusion that each citizen might have one vote; that 15 per cent of the citizens might have 100 votes each; and, roughly, there would be five groups whose members would have, respectively, 5 votes, 10 votes, 13 votes, 18 votes, and 27 votes for each individual—and this apportionment might be revised, if experience indicated a necessity, from time to time after the Federal census had been taken.

* * *

WE are embarrassed by a divided interest set up in the mind of the voter, if he is an office holder. An outstanding example is the public school teacher.

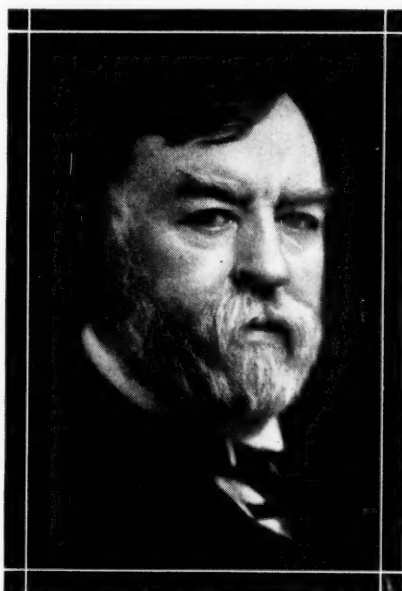
The State of New York from 1900 to 1930 increased its population by 73 per cent, while the taxes from Federal and State sources for the public school system increased 2,278 per cent. And this result was largely the work of the teachers' lobby, one of the most powerful selfish interests with which we have to contend. It might well be seriously considered that during the holding of a public office the voter and any dependent upon him should have the right of suffrage suspended.

A similar divided interest is to be found in the organization of Labor, which seeks to evade responsibility before the law for the organization itself, which has no legal status, and for its membership, who are in no way accountable for its activities. The Labor organizations should be made responsible under the law, their accounts should be examined by officers of the State, their

ballots should be secret, the qualifications of their voters and the count should be supervised and its good faith and accuracy certified to by an officer of the State. There is no place in this country for a government within the government. All must be subject alike to the law.

We might well study carefully the English laws, where Trade Unions register with the Registrar, filing copies of rules, lists of titles and names of officers, and only then is the certificate of registration registered. The Registrar may cancel the registration if one of its purposes is unlawful or it has violated any provision of the Labor Union Acts or if its principal objects are no longer "statutory objects." Members striking in breach of rules as to obtaining the sanction of the Union and giving notice to employers are not entitled to receive strike pay. A general statement of the activities of the Union must be transmitted to the Registrar before the first of June in each year. The treasurer must render the accounts and the trustees must have the accounts audited. All acts of coercion, violence and intimidation are illegal. Peaceful picketing and persuasion to refrain from work are legal if done in furtherance of a trade dispute. Provisions in the rules enabling a committee to compel members to strike or to penalize them for not striking have been held as illegal restraint of trade. General strikes have been declared illegal by statute.

In the discussion of this law after the great general strike of 1926 the Prime Minister, Lloyd George, said with great emphasis, "England must remain master in her own house."



L. F. Loree

President, The Delaware and Hudson Railroad and Chairman of the Executive Committee Kansas City Southern Railway, New York City

ONE of the gravest problems confronting us today is taxation—the aftermath of an orgy of extravagance. The pay-as-you-go policy—the revenue doctrine of the Federal Government for nearly 150 years—has been cast into the limbo of forgotten things, but the day of reckoning is near at hand and one need not be a prophet to envisage it as a day of wrath for those who have squandered our national resources by profligate public expenditures.

The total taxes in 1934—Federal, State and local—will amount to \$9,000,000,000, at a time when our income is virtually at rock-bottom. The national income for 1934 has been set at \$45,000,000,000. In 1929, 11.8 per cent of the national income was collected in taxes; in 1932, the figure was 20 per cent, while in 1934, it is estimated that at least 40 per cent of the total income produced is being spent or invested through government channels whereas 10 per cent has been the accepted deadline by statesmen in the past. The total Federal income taxes paid in the United States in 1934 will be \$817,025,340. Of this the five States of New York, Pennsylvania, New Jersey, Massachusetts and Ohio will pay \$446,160,710, or substantially more than one-half, while 15 of the 48 States, with more than half the power in the House of Representatives, pay over 87 per cent of the income tax.

* * *

THE effect is easily seen. In the ten years ending with 1930 the average annual investment of new capital in business through security issues was about \$4,000,000,000; in 1930 about \$1,551,000,000; in 1932 about \$335,000,000, and in 1933 about \$160,000,000.

For the first time the Federal budget has been divided: the levy of approximately \$4,000,000,000 takes care of current operating expenses. The Seventy-third Congress, adjourned in June, appropriated \$11,000,000,000 and pledged the Treasury to a contingent liability of \$6,000,000,000. These New Deal expenses of \$17,000,000,000, additional will have to be met by increased taxes and already there is a deficit of \$4,000,000,000 which is increasing daily. This money has been spent or is authorized and the taxpayer must foot the greater share of the bill.

There has been put on the program for consideration of the next session of Congress unemployment insurance, old age pension and legislation enlarging the responsibilities of government to citizens. These are not included in the aforementioned computation.

The total indebtedness of the Federal Government now approximates \$27,000,-

000,000 compared with \$1,193,000,000. in 1913, and is about 15 per cent of the total national wealth. To carry the load, an annual tax burden of \$7,000,000,000 will be required, or almost double the present levy. This increase does not tell the whole story. The total expenditures of government are considerably larger than annual tax collections and there remain huge deficits to be covered by borrowings, which are merely deferred taxes.

* * *

FRANKLY facing facts, this is a very critical period in the history of the United States, for the nation today is in the incipient stage of an industrial, economic and social revolution and the first duty of the thoughtful citizen is to realize the gravity of the present situation.

Preliminary maneuvers are under way for a complete overturn of the theories of government which have held in this country since it became a nation. It is a struggle between collectivism and individualism. Transforming our political system into a Federal bureaucracy is not an event about which to be academic and no one with faith in our institutions and old-time liberties can but be deeply stirred at the prospect now confronting our people.

The highest obligation of citizenship demands that we protect ourselves from those influences which are so subtly at work undermining the Constitution and tinkering with an economic structure that has made us the most prosperous people in the world.

Today we are threatened by the false prophets of Socialism and Communism, and our people confused and threatened with division by propaganda apparently largely financed and directed from abroad.

* * *

I think we give ourselves too much concern about the Socialists and Communists. Their strength lies not in the merits of their suggestions, but in our ignorance of their methods and effects. The Socialists would appear to have no more than 500,000 members and are so split up over differences of doctrine as to be negligible. The Communists would appear to number about 25,000, and are active promoters of disorder. They are said to have been the moving power in the Minneapolis truck strike and to be ruthlessly criminal in their methods.

* * *

THE measures now being executed or proposed will change the pattern of our life; everything would be controlled or operated according to a wave of the wand in the hand of a "brain trust". These revolutionary remedies are based not upon a study of the actual ills of the nation, but upon a fantastic con-

ception of what ought to be the matter with our body politic.

At first many of the remedial schemes were experimental, but pretense is now abandoned and in the Congressional session next January, the main battle of Americanism against State Bureaucracy will decide whether the emergency measures adopted by the last Congress shall become permanent laws of the land, or whether we shall again be forced to rise to defend the Constitution.

We must become active in behalf of sound government. We want no State where individual initiative and self-guided development would be merged or lost. There must be creative enterprise and productive capital. The first exists only in individuals, and springs only from expectation of individual advantage and advancement. It can never be created by compulsion and no effective substitute has ever been found. The law of nature knows or owes no permanent security save to individuals or industries or nations which demonstrate their creative power by survival and growth.

For the first time our government is encouraging millions to rely upon it for support, thereby transforming a self-reliant people into a nation of idlers and political wire pullers. As an example, in the drought area farmers must sign away all liberty of action to obtain relief funds.

* * *

WE must demand a continuance of an economic order based on the individual rights and liberties guaranteed by the Constitution and at the same time oppose any violation or distortion of that Constitution to achieve Socialist or Fascist objectives in our governmental, economic and social system.

Above all, constant efforts should be directed against any "planned economy" which involves complete control of industry by the Government and regimentation of the people. "Planned economy" is simply Communism, but thus far the New Deal has not had the courage to so designate this movement.

* * *

WE may well reflect upon the comments of Lord Bryce in his "American Commonwealth"—

"Self-government stimulates the interest of people in the affairs of their neighborhood, sustains local political life, educates the citizen in his daily round of civic duties, teaches that perpetual vigilance and the sacrifice of his own time and labor are the price that must be paid for individual liberty and collective prosperity.

"The strength of the National Government in the United States is largely due to sentimental forces.

"The devices which we admire in the Constitution might prove unworkable among a people less patriotic and self-reliant, less law-loving and law-abiding.

"The Constitution of the United

States (including amendments) may be read through aloud in 23 minutes. "In no country is public opinion so powerful as in the United States; in no country can it be so well studied."

* * *

IT would be well for us all to see to it that the warning counsel of Washington in his Farewell Address be heeded by those whom we select to battle again for us in the halls of Congress, when he said:

"Toward the preservation of your government it is requisite that you resist with care the spirit of innovation upon its principles, however specious the pretexts. One method of assault may be to effect, in the form of the Constitution, alterations which will impair the energy of the system and thus to undermine what cannot be directly overcome. If, in the opinion of the people, the distribution or modification of the Constitutional powers be in any particular wrong, let it be corrected by an amendment in the way which the Constitution designates. But let there be no change by usurpation . . . it is the customary weapon by which free governments are destroyed."

* * *

WHAT part can we personally play in these matters.

1—We are too prone to look on the pessimistic side. This is particularly true of those of the younger generation who have not had the benefit of experience in "normal times." Let us endeavor to adopt in a small measure an optimistic viewpoint.

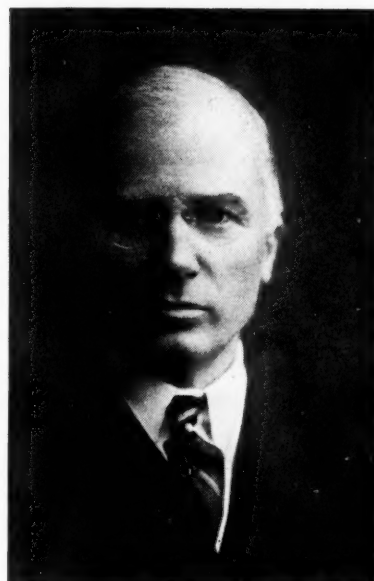
2—As to the political situation, we should become political minded. Know thoroughly our local situation. Work for reduced expenditures, as only in this way can taxes be reduced.

3—The control is still in our hands and the first opportunity for action will be the election in November. This should have our first attention.

THIS nation's greatest strength and glory spring from the freedom of its citizens. Shall we, because of a depression, destroy the very foundation of our national happiness and success? I am willing in these days to grant the executive more than ordinary powers, but I am convinced we have already gone far enough, and in many instances entirely too far in regulating the lives and industry of the American people. It is time to get back to constitutional liberty and dependence more upon the initiative and industry of the people and less upon governmental panaceas and bureaucratic regulation.—

Hon. Harry Flood Byrd,
U. S. Senator from Virginia.

MR. WILLARD ANSWERS SOME RAILROAD QUESTIONS



Daniel Willard
President Baltimore & Ohio Railroad Co.

IN a recent letter to President Daniel Willard of the Baltimore and Ohio Railroad Company, the MANUFACTURERS RECORD, duly recognizing the important part that the railroads have taken in national development, asked some questions concerning railroad problems about which there are many conflicting opinions. It cited the fact that the railroads have been a great upbuilding force in the nation's progress. In making quick, dependable transportation available to vast areas and through their development organizations in bringing manufacturing and raw materials together, they have been a primary medium in creating wealth in this country. The MANUFACTURERS RECORD believes they will continue to be the backbone of our transportation system.

In recent years, however, railroads have been hampered by government restrictions and there have developed a combination of difficulties not all of which are the result of expanding competition of younger transportation mediums. On one hand shippers have been appealing for reduced rates, and in the South particularly they have been asking for an equalization of outbound freight rates with those applying to competing industries in other sections. Producers say they cannot pay high freight rates and remain in business and hence turn to competing transportation agencies. On the other hand, the railroads burdened with greater expenses of operation due to higher wage costs and higher prices for their purchases under NRA, are demanding an advance in freight rates.

Mr. Willard was asked:

Will consolidation be the way out? In consolidating lines and eliminating duplicated or near-duplicated service, will this not further reduce railroad employment? Can the roads work out of their difficulty by developing and adopting more efficient, light-weight and faster units? Is the solution to be found in regulation of competing transportation facilities? Will this not add to the cost of transportation to the general public.

To these questions Mr. Willard replied as follows:

The Baltimore and Ohio Railroad Company
Office of the President
Baltimore, Md.

On Line—September 17, 1934

Editor MANUFACTURERS RECORD:

I have read with much interest what you say in your letter of September 15. You ask for my views concerning two or three specific questions.

First, you say, "Will consolidation be the way out?" Consolidation such as contemplated by Congress in the transportation Act of 1920, and such as has been approved by the Interstate Commerce Commission in the Eastern Region, would in my opinion be very helpful, but the condition is one which cannot be cured by any one particular act.

You say further — "In consolidating lines and eliminating duplicated or near-duplicated service, however, will this not further reduce railroad employment?" Certainly, anything that is done to cut down the number of trains run, or to reduce the number of offices or

shops now in use will result in reducing the number of employees required. However, I do not think we can justify, even from the standpoint of employment, a situation which requires the use of a greater number of men than are economically necessary. The economies to be brought about by such changes as you refer to should be developed in such a way, however, as to do no injustice to those who would be directly affected. This might be accomplished by what has been referred to as the result of attrition, meaning that the total number of men employed in the railway service, if no additional men should be employed, would show a constant decrease year by year, and in the course of five or six years the economies in mind might be largely accomplished. This in my opinion is the manner in which the matter should be handled.

You ask further, "Can the roads work out of their difficulty by developing and adopting more efficient, light-weight and faster units?" Undoubtedly lighter units

will be adopted if and when they are needed, and to the extent that lighter materials may become available. The Baltimore and Ohio Company is having built at the present time two passenger trains of eight cars each, one train being constructed of a high quality steel, and the other of an aluminum alloy. The two trains will weigh about one-half of what the same number of cars would weigh if manufactured out of carbon steel which is really the only steel in general use at the present time. If the results obtained from the two experimental trains above referred to are satisfactory we will naturally use that material for similar purposes in the future. I should say in further reply to the question above quoted, that we could hardly expect to have economies in train service by running lighter trains and more of them. That would naturally require a greater instead of a lesser number of men.

You also ask—"Is the solution to be found in regulation of competing transportation facilities?" Again my reply is that the situation from the standpoint of the railroads will be greatly helped by proper regulation of all competing agencies. The railroads today are very fully regulated in practically all of their activities, while the transportation agencies with which the railroads are obliged to compete are under very little, if any, regulation of a similar kind. Railroad managers believe that such a condition is unfair and I join in that belief. If it is necessary in the public

(Continued on page 68)

TRANSFORMING TENNESSEE BASIN INTO VAST TESTING GROUND

By
Carroll E. Williams

Daring Sociological, Conservation and Industrial Decentralization Experiment Under Way on Far Flung Front. \$410,000,000 Five-Year Development Program Includes Hydro-Electric Power, Fertilizer and Other Government Projects; Reforestation; Control of Flood Waters and Soil Erosion; Navigation Improvement, and Town Building.

TEN thousand men are working for the Tennessee Valley Authority in day and night shifts harnessing rivers to develop hydro-electricity, to facilitate navigation and to control flood waters; reforesting barren lands to offset soil erosion; building towns; erecting fertilizer plants and building power lines.

So the daring experiment, the highlights of which were presented in the MANUFACTURERS RECORD of June, 1933, is under way over a far flung front.

The TVA has as its declared objective a constantly increasing use of electricity in homes, on the farms, and in factories, and to provide a "yard stick by which to measure the fairness of rates and the soundness of financial practices of public utilities, not only in the Tennessee Valley area, but throughout the country."

The Tennessee Basin has become a vast laboratory for experimentation in the administration's regional planning program.

Seek To Stimulate Use of Power In Home and On Farm

With a view to putting in homes and on farms appliances by which electricity is used, the Electric Home and Farm Authority was formed to promote the sale of low cost appliances. It has a capital of \$1,000,000, and a credit up to \$10,000,000 with the RFC. Nationally known manufacturers cooperated with it to produce electric refrigerators and ranges to sell for not more than \$80, and hot water heaters to sell for not more than \$65. Retailed by regular appliance

dealers and private power companies, the sales are financed over a period of as long as four years by EHFHA.

Large Scale Industrial Expansion Needed to Absorb Power

Although effort is directed to stimulate the use of electricity in the home and on the farm, the need for large-scale industrial expansion to absorb the great pool of power which is in the making is receiving consideration.

The partial transfer of industry to agricultural areas is envisioned as a highly beneficial step to agriculture so that using improved highways farm

families may find employment to supplement the farm income by wages gained in industrial pursuits. It is contended that the Valley contains twice as many people in rural areas as are needed for agricultural pursuits, and that it should be possible to develop local industries with the help of cheap power to manufacture what they would like to buy.

Tennessee Basin Described As Ideal To Test New Deal Ideas

An intelligent and ambitious population; an abundance of natural resources—coal, asphalt rock, barytes, bauxite, clay, iron ore, manganese, marble, phosphate rock, slate, zinc ore, limestone, sand and gravel, etc.; a mild climate; a plentiful supply of water for domestic and industrial purposes; excellent water, rail and highway transportation facilities—all these and more are catalogued as reasons why the Tennessee Valley is distinctly appropriate as a testing ground for the Administration's ideas.

Snag In "Enlisting" Obsolete War Time Plants in Production of Fertilizer

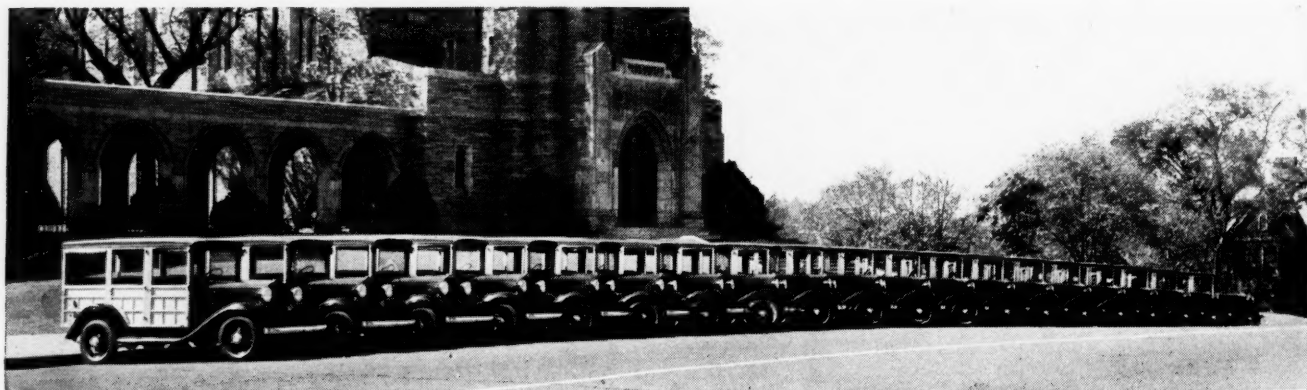
The wartime Muscle Shoals project, involving an expenditure of upwards of \$150,000,000, enlisted in "the service of the people," as the President expressed it, apparently means to TVA putting the generators at Wilson Dam to work and using a small part of the \$69,000,000 Nitrate Plant No. 2 for the production of "experimental fertilizers."

The fertilizer production activities are not being publicized. Engineers have pointed out that the nitrate plants are virtually beyond salvaging.

Attention is called, however, to the expenditure of more than \$300,000,000 actually being put into projects designed for salvaging a hydro-electric plant worth perhaps \$25,000,000.

About \$4,000,000 is being invested in

Fleet of Cars Purchased by TVA



a new fertilizer plant, it now is learned, and instead of being designed for the manufacture of nitrate-fertilizers there will be produced phosphoric acid fertilizers, using phosphate rock obtained from Tennessee deposits, and large quantities of power.

Speaking of the nitrate plants as a source of nitrogen in time of war, Dr. H. A. Morgan, authority director, recently said: "Its national defense aspects will be maintained, but its contribution to agriculture must be in researches to cheapen the processes of available phosphorous and the combining of this element with the other plant foods."

Preventing Soil Erosion A Major Objective

In the eyes of the TVA directors, the "intelligent development of agriculture" is more important than any of the other numerous component parts of the program. It is held that the fundamental factor in whatever progress is made is land—not power. For that reason, a major objective is the problem of improving land.

The control of soil erosion, therefore, looms large on the horizon of the "new day" visualized by TVA officials. It is imperative that soil be conserved to prevent reservoirs being filled up, and to restore impoverished tracts, robbed of rich loam, for profitable agricultural use.

The effective storage capacity of dam-reservoirs is prematurely affected by silting, which is said to go on at the rate of as much as 1 per cent per year in some sections of the Valley. Of 742,000-acres of non-forest land in the Norris Dam drainage area, it is stated that 60 per cent is "absolutely washed away—ruined for agricultural use". The TVA program aims to reduce by one-fourth the silting and washing away in the vicinity of this dam, to insure longer and more efficient service of the costly project which it is hoped will play such an important role in the control of flood waters, add to the power output, and facilitate navigation development of the river system.

TVA Charts Path To Achieve Sociological Goal

The attack will be made along several fronts, with definite Government control of farming operations in prospect.

First, different methods of farming will be encouraged. For example, TVA decrees that corn crops on hillsides must give way to "grass and cover crops".

Second, the most rolling land should "be taken out of agricultural and planted to forest".

Third, a change is proposed in our laws of land ownership so that "if a man is handling his land in a way that will destroy it, the part he can't



Residences at Joe Wheeler Dam

take care of"—TVA officials hold—"should be taken away from him and given to someone who will prevent soil erosion".

Reforestation and Elimination Of Soil Erosion Heralded As Twin Giants

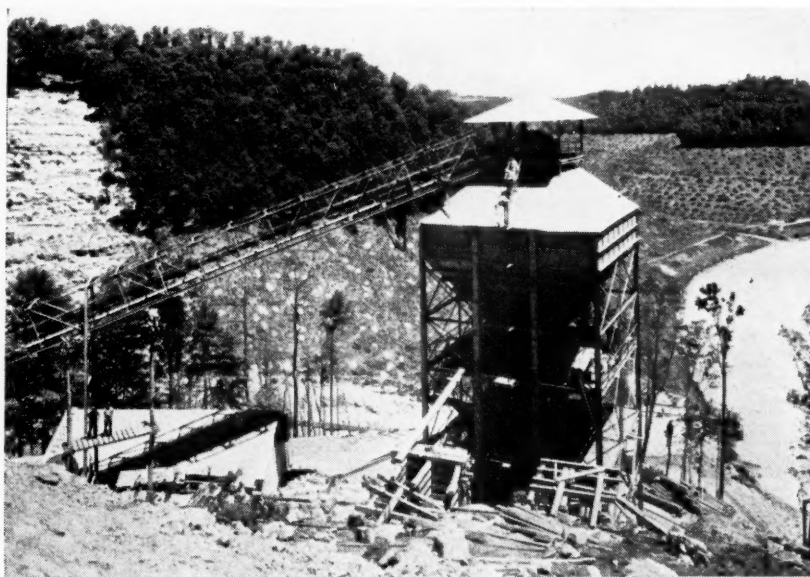
A forestry policy, too, is suggested as essential to the success of the TVA program to the end that timber will be "treated as a crop to be harvested at regular intervals, and not as a mine to be used up and abandoned". And early in the promulgation of this phase of the plan, officials question whether "private ownership of great tracts can well lead to this intelligent treatment".

Since its creation August 10, 1933, the Forestry and Soil Erosion Division of TVA in fighting erosion has constructed 19,500 masonry and rock dams; 16,800 log dams; 23,880 brush dams; 21,000 bag dams, and placed "matting" on more than 254,000-square yards of washed

surface. In addition, two nurseries have been established, one at Clinton, Tenn., near the Norris Dam, and one at Nitrate Plant 2.

The Forestry and Soil Erosion Division is directing the work of 25 CCC camps of 5,000 men in Tennessee and Alabama; has established a soil erosion experiment station in cooperation with the United States Department of the Interior; selected and optioned for purchase nearly 20,000 acres of eroded lands in the Norris reservoir; cooperated with the United States Forest Service in a survey of the Clinch and Powell rivers' watersheds; established and conducts a tree crop nursery and experimental orchard near Norris; cooperated on various homestead projects; cooperated

Three 3-yard Mixers handle 4,000 cubic yards of concrete daily at this mixing and distributing plant at Norris Dam





Building Roadway at Norris Dam

with Federal and state foresters in creating the Tennessee Valley Forestry Advisory Council for mutual assistance; cooperated with the National Forest Service in national forest purchases affecting the Tennessee Valley.

The Forestry and Soil Erosion Division has planted 6,000 Asiatic chestnuts and is raising 40,000 Asiatic chestnut seedlings in its nurseries to replace native chestnuts destroyed by the blight, and in eastern Tennessee has planted 40,000 white ash; 20,000 sycamore; 50,000 tulippoplar; 25,000 sugar maple; 10,000 red pine; 10,000 pitch pine; 40,000 shortleaf pine; 3,000 red cedar; 25,000 willow; 25,000 cottonwood; 7,000 Kudzu vines—a total of 2,751,000 trees.

Concrete Pourers on Cableway at Norris Dam



Incidentally, the CCC has strung nearly 100 miles of telephone wire, has improved 4,118 acres of timber stand, constructed 50 miles of truck trails, and built 42 vehicle bridges.

Plan Held Mutually Beneficial To Agriculture and Manufacturing

In connection with plans for the "establishment of a better industrial and agricultural balance" through the utilization of natural resources in the Valley, the Tennessee Valley Associated Cooperatives has been organized in Knox County, Tenn. It was allocated \$300,000 by the Federal Emergency Relief Authority with which to begin operations.

Recently \$100,000 was appropriated for experiments looking to a wider use of coal.

With the cooperation of the U. S. Geo-

logical Survey, aerial mapping of the 40,000 square miles of the basin is under way.

Creation Of New Social Order Taken Up By TVA Officials

In the minds of officials directing the vast experimental scheme it is not a project of a day or a month, it is not primarily a dam building job, a fertilizer job, or a power distributing job. It is aimed at an improved social and economic order, scheduled to "displace the lack of intelligent planning with foresight, imagination and social responsibility." In a word, it is calculated to give expression to the dominant spirit of the New Deal as conceived by the President. The program should be viewed, officials point out, not as an isolated undertaking, but as an integral part of the whole program of the present administration.

* * *

First Definite Project Generation and Transmission Of Power

BESIDES operating Wilson Dam at Muscle Shoals, the Authority is constructing two other dams—Norris and Wheeler—and is conducting preliminary surveys looking to the possible construction of four additional dams in connection with the Tennessee River's unified Federal hydro-electric development.

Two Types Of Dams Involved

Two distinct types of dams are involved—"run of the River" dams where all the available falling water will be utilized for turning turbines; second, dams for the primary purpose of storage, although some generating equipment will be provided in connection therewith. The latter will be located on tributaries of the Tennessee, and will store water in seasons of high flow, and release it during periods of low flow in order that it may be used to generate power at "run of the river" plants down stream.

The Wilson Dam is a "run of the river" plant; that is, there is comparatively little storage of water in the dam above the lake. Under present conditions, when the Tennessee is high, there is sufficient water to develop 300,000 horsepower; when the river is very low, there is enough water to develop only 30,000 horsepower. By building additional dams, vast storage reservoirs will be created which may be used to regulate the flow of water and to generate power as well.

The Tennessee River system drains 40,000-square miles in seven states. A

War Department report transmitted to Congress in 1930 estimates that it would be necessary to expend \$1,200,000,000 for the maximum ultimate use of the waters of the Basin, the projected plan of development including 140 hydro-electric plants. It was estimated that by creating storage reservoirs, which would equalize the flow of the river, there could be developed about 3,000,000-kilowatts of primary power.

Five-Year Power Plan Involves \$310,000,000

A plan to spend in the next five years \$310,000,000 was disclosed to Congress in a report covering the first year's work of the TVA. Aside from the \$50,000,000 initially appropriated, this sum is to be expended as follows: \$72,000,000 in 1935; \$56,000,000 in 1936; \$41,000,000 in 1937; \$45,000,000 in 1938, and \$40,000,000 in 1939.

At the same time, plans for building four additional dams, estimated to cost \$130,000,000 were presented. Two of these will be the run-of-the-river type, and two storage dams. Locations are still indefinite, but, in a general way, there would be a \$13,000,000 storage dam on the Hiwassee River, which empties into the Tennessee above Chattanooga, and another to cost about \$30,000,000 somewhere on the French Broad River which rises in the mountains of North-eastern Tennessee and Western North Carolina. Run-of-the-river dams are contemplated at Aurora Landing, in Kentucky, near the Tennessee border about 44 miles from the confluence of the Tennessee and Ohio Rivers, and at Pickwick Landing in southeastern Tennessee, near the Mississippi-Alabama line, involving \$42,000,000 and \$39,000,000, respectively.

The seven dams provided for in the program thus far outlined definitely by TVA authorities will produce 750,000 to 1,000,000-kilowatts of primary power.

Under the plan now projected, the dams will be built progressively so that construction equipment now in use at Norris and Wheeler Dams may be utilized.

Two different types of concrete plants were adopted to conform to conditions at the dam sites. For instance, the Tennessee River at the site of the Wheeler Dam is 6,000-feet wide, as compared with the span of about 2,000-feet across the Clinch River at the Site of Norris Dam.

Norris Dam Under Way At North Portal Of Valley

The \$34,000,000 Norris Dam on the Clinch River, 20 miles northwest of Knoxville will rise 250 feet high, creating a reservoir with a water area of 83 square miles, 12 miles wide at points and 41 miles long, and a shore line of more than 800 miles. The installed gen-



Cableway Concrete Pourers at Norris Dam

erating capacity will be 200,000 horsepower.

The concrete wall, 210 feet thick at the base and surmounted by a 22-foot highway will require 1,000,000 cubic yards of concrete, transported by a 1926-foot cableway in 6 cubic yard bottom-dump buckets.

Two sets of 75-foot head towers and 110-foot tail towers, using the same track runway for lateral movement, were built by the Virginia Bridge and Iron Company, of Roanoke, Va., and equipped by the Lidgerwood Manufacturing Company, Elizabeth, N. J. Each three-inch cable, made up of 169 strands of special steel wire, weighs 28 tons. Head and tail towers can cover 500 and 528 feet respectively, sufficient to permit placing concrete anywhere in the dam, spillway or power house areas.

Extreme flexibility in operation of the quarrying, crushing, screening, conveying and delivering of materials to the central mixing plants is a feature. The general scheme, however, is based on

operating 5½-hour shifts daily, allowing two hours for oiling, repairing, etc.

Sand and aggregate for the concrete is taken from a nearby hillside. Wagon drills, initially used in preliminary drilling operations for the foundation of the dam are employed. Jackhammers are used for secondary drilling. When the entire 1200-foot face of the quarry has been developed, the work will be advanced in 28-foot lifts, and a 200 to 300-foot length of face will be "shot" at a time.

Spoil is loaded into 10-yard dump trucks by two 3-yard electric shovels, the same equipment that was used to handle 375,000 yards of material in the foundation for the east end of the dam. The trucks dump into a primary crusher, and material is conveyed to a secondary crusher and then moved to screening towers and the concrete mixing plant, which is located several hundred feet

Electric Shovel at Joe Wheeler Dam





Mixing and conveying machinery installed on float used in building Joe Wheeler Dam

from the runway of the cableway head-towers. The mixed concrete is dumped into transfer cars, hauled by gasoline-driven locomotives into position beneath the cableway and dumped into the 6-cubic yard bucket attached to the cableways.

A feature of the operations is the reduction of crushed rock to sand, two sizes being produced.

The concrete mixing plant has a capacity of 3000 cubic yards daily. Cement is delivered in bulk by railroad cars to silos at Coal Creek, 4.8 miles from the dam site. It is transferred by pumps to 65-barrel motor trucks to the dam site, where it is unloaded by pumps either to a 6,000-barrel steel silo, or directly to the mixing plant bins. Use of aluminum for truck-tanks permitted an increase of about 10 per cent in the tonnage of cement that can be handled, as compared with steel tanks.

Run-of-the-shovel output is delivered to a 42-inch Allis-Chalmers gyratory pressure, Texrope-driven by a 250-horsepower G. E. motor, discharging onto a 36-inch felt conveyor of 300 tons an hour capacity, feeding a 2-deck, 6-inch and 3-inch screening tower. The secondary crusher is a Symons 5½-foot shorthead cone unit, Falk flexible coupling, 200-horsepower G. E. motor driven. The output is then fed onto a 30-inch incline conveyor leading to screens and feeders which sort into four sizes, each of which is piled separately over a 6 by 6-foot concrete tunnel, in which is operated a 30-inch belt conveyor for reclaiming.

Hammer mills are used to produce sand from crushed rock, two 42 by 48-inch Allis-Chalmers units, direct connected to two 250-horsepower motors being used. The output is delivered by a belt conveyor to a fixed sand stacker that piles over the reclaiming tunnel.

Four power shovels are used in loading muck. Inside the cofferdam two 3-yard electric and a Marion and A Bucyrus-Erie are used. A 1¼-yard Marion gas-electric, and a 1¼-yard Lorain gas-driven shovel are also used. Four tractors, equipped with bulldozers, concentrate the spoil for the shovels. Three are Allis-Chalmers and one is a Caterpillar. Six trucks, with 12-yard bodies, and two 8-yard standard-type trucks are

used for hauling muck from the cofferdam. Smaller trucks are used elsewhere on the job. Out of the power house and tail race area 300,000 yards of rock are being removed.

The first concrete for Norris Dam was poured in July, 1934. Pending completion of a transmission line from the Muscle Shoals power plant to supply power for construction operations, power is being obtained from the Tennessee Electric Power Company through an interchange agreement. The Cole Creek-Knoxville Line of the Tennessee Company passes within a quarter of a mile of the dam site. When peak operations are underway the connected load will total close to 5000-horsepower.

* * *

Second of TVA's New Dams and Power Plants

BECAUSE of the width of the Tennessee River at the Wheeler Dam site, engineers decided that the cost of a cableway would be excessive, and, therefore, set about to develop a mobile concrete handling plant. Four steel barges, electrically welded, each 40 by 90 feet and having a draft of 5½ feet when loaded were built by

the Ingalls Iron Works Company, Birmingham.

The General Joe Wheeler Dam, about 6400 feet in length will raise the water level 50 feet and form a lake 80 miles long, extending to a point 5 miles upstream from Guntersville, Ala. The dam, power house, and appurtenances will contain about 600,000 cubic yards of concrete, and necessitate the excavation of 500,000 cubic yards of earth and rock, about 300,000 cubic yards of which will come out of the area enclosed by the first cofferdam.

Each barge is equipped with a crane having a 75-foot boom for handling sand and gravel, and a 150-ton capacity storage bin for materials, and a complete electrically operated mixing unit.

The bins, conveyors, batchers and tanks were supplied by the Blaw-Knox Company, Pittsburgh. Four tilting concrete mixers of 2-yard capacity each were supplied by Norris K. Davis, San Francisco, Calif. The American Hoist and Derrick Company, St. Paul, Minn., supplied four 75-foot revolving cranes, which are to handle 2-yard buckets into the five cofferdams which will be required to span the river. In the first cofferdam, site of the power house section, which is 800 feet long and 170 feet wide, it will be necessary to rehandle the concrete into the forms. This will be done by six gantry cranes, furnished by the Clyde Sales Company, Duluth, Minn.

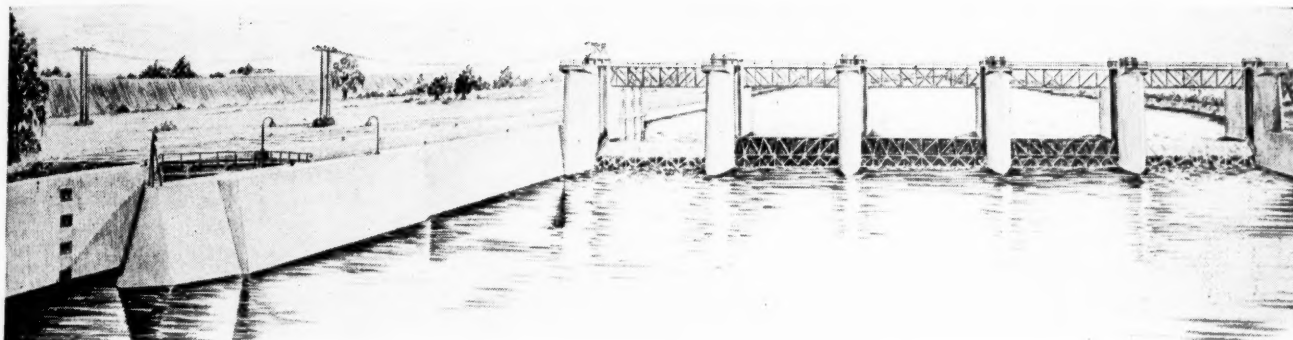
A total of 600,000 cubic yards of concrete, which will be required for the dam, power house and appurtenances, will be mixed and placed by the floating equipment. The power house will have a capacity of 450,000 horsepower.

The Cumberland Sand and Gravel Company, Nashville, Tenn., will supply the sand and gravel aggregates, the contract calling for from 1,000,000 to 1,250,000 tons. The aggregates will be dredged, washed and screened at a site on the river below Sheffield, near Muscle Shoals, and will be moved up the Tennessee River through locks to Lake Wilson, above Wilson Dam, and thence to the Wheeler Dam Site. The aggregates' contractor will operate 30 barges in this service.

Sand and gravel brought to the dam
(Continued on page 70)

One of four Cofferdams used in initial construction stages of Joe Wheeler Dam





Lock and Dam

SAVANNAH RIVER IMPROVEMENT

By

Thomas J. Hamilton

Editor, The Augusta Chronicle and President of the Savannah River Improvement Commission

THE dream of those who fought for 15 years for Savannah River improvement has come true. Construction of the New Savannah Bluff lock and dam 15 miles below Augusta, Ga., to assure a six-foot channel from Augusta to Savannah is a reality. The Arundel Corporation of Baltimore, which has made a specialty of Government work, was awarded the contract at \$977,305, about \$20,000 under the second lowest bidder.

The construction of the dam will require between 3,000 and 4,000 carloads of material. There will be six concrete piers, each 68 feet high and twelve feet

wide. The lock will be 60 feet in width and 300 feet in length, sufficient to accommodate tow boats and barges bringing at least 2,000 tons of cargo. Workmen will be transported to and from the site by trucks and buses from Augusta. It is estimated that 300 men will be required for 18 months to two years to complete the lock and dam, while 200 more will be needed to complete channel improvements below the dam.

The letting of the lock and dam contract will be followed by other construction below the dam, which will consist in the building of jetties, shore protection work and dredging. It is expected that the improvement will cost approximately \$2,000,000 giving a year round six-foot channel between Augusta and Savannah. Eighty per cent of the low water trouble in the Savannah River occurs between Augusta and the site of the new dam; therefore, the building of this dam will correct nearly all of the navigation difficulties.

The project for a deeper Savannah River channel was approved by the U. S.

Contract Let for Lock and Dam to Assure a Six-Foot Channel From Augusta to Savannah. Influence of This Waterway Improvement on Freight Rates Over a Wide Area in Southeast Will Mean Saving of Millions of Dollars to Shippers

Board of Engineers for Rivers and Harbors and the money allocated by the Public Works Administration in October, 1933. In approximately one year from that time surveys and other engineering data were completed, bids were advertised and the contract awarded.

With the Savannah River channel deepened, Augusta will be the point furthest west that can be reached by waterway from the Atlantic seaboard. Augusta is on a direct line north and south from Toledo, Ohio, and is west of Buffalo and Pittsburgh. Geographically this city is the key to the Southeast. It is at the fall line, so to speak, where the Coastal Plain meets the Piedmont. Above Augusta the Savannah River comes tumbling down from the Blue Ridge Mountains in almost endless processions of cascades and cataracts, while below Augusta it flows lazily to the sea, furnishing limitless opportunities for power above the city and opportunities for navigation below.

Augusta is going to be the distributing center of the Southeast. It is here that the Savannah River will connect with

(Continued on page 66)

Government Dredge on Savannah River at Augusta

Channel is kept open for navigation while \$2,000,000 improvement program is in progress.



MOB RULE IN THE NAME OF LABOR

By
Walter J. Kohler
President, Kohler Co.,
Kohler, Wis.

THE morning of July 16 the Kohler Co. plant and offices, at Kohler, Wis., were beset by pickets, notwithstanding the company had received no direct notice that a strike had been called or that negotiations had been broken off by the union.

The pickets—a relatively few Kohler employees and former employees, reinforced by many outsiders—were violent from the first hour. Factory and office workers, who attempted to get into the plant, found their way blocked by a dense mass of pickets holding long ropes across the entrances. The workers were intimidated, manhandled, assaulted. This was an attack, not with “economic weapons”, but with physical force.

For twelve days and nights pickets closely besieged some 200 employees, including a dozen young women, within the company property; endeavored to starve them out, and might have succeeded but for the fact that they did not dare interfere with the delivery of food by United States parcels post. Missiles were hurled at those inside.

Meanwhile, all production had been discontinued in the factory, in the hope that more serious violence might thus be averted.

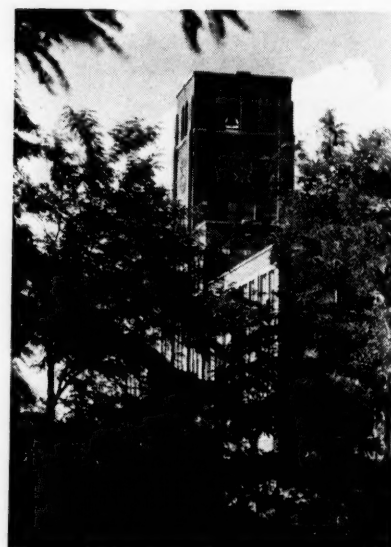
But, on the morning of July 27, Sher-

iff's deputies and Kohler village police, having in the meantime been considerably recruited, acted to protect the water supply of the community, which is pumped by Kohler Co. under a contract with the village. Although the strikers had stated that, with no production going on, they would permit a car of coal to enter the plant every second day for pumping water and lighting and maintaining the plant, and although less than that amount of coal had actually been brought in, the pickets that morning excluded a car and sent it back to Sheboygan. It was again sent for and brought in under police protection.

Following this, the police cleaned up pickets' shacks on company property; gathered and hauled away large quantities of clubs, sling-shots, and missiles; and compelled pickets to give up large clubs which many of them were carrying.

That night a wild riot was staged by several thousand mobsters against a plant that was completely out of production. Simultaneous attack was made at the north and south ends, and the whole carnival of vandalism was so timed, so systematically conducted as to show unmistakably that it had been carefully planned. Windows were shattered, much property damaged, threats to “get the village” were made. As the rioting became more furious, the police finally went into action with gas bombs.

Then started a surge of rioters into the village residential area. Halted and turned back, the mob directed stones and gunfire at buildings used for combined business and residential purposes and in which there were women and



General Office, Kohler Co.

children. At the height of this, and as the rioters once more started forward in a counter movement, riot guns were used by the peace officers; two people were mortally wounded, some 40 others injured.

What was the purpose of this immediate resort to force by the strikers, the intensifying of that force until it became flaming riot, the flouting of law and order, and the utter defiance of peace officers, to the point where only by the use of strong measures could they avert stark anarchy from overwhelming a peaceful community.

Were there unbearable grievances that maddened these people? If so, it seems strange that not a grievance as to wages, hours, or working conditions was ever mentioned by the union representatives in their meetings with the company until July 6, 1934, although there had been meetings as far back as October, 1933. Strange, too, that in mediation conferences shortly after the riot, the union leaders expressed their readiness to postpone all demands on these subjects.

Had Kohler Co. at any time closed the door to negotiations? It had met with the union representatives every time they requested a conference, and in both the oral discussion with their bargaining committee July 6 and the written answer July 11 to the union demands, the company specifically offered to discuss with union representatives, at any time, any and all questions or complaints of the union members in relation to their employment.

But right there was the rub. The union leaders did not want to discuss the interests of members only; they wanted to represent all Kohler employees, including those who strongly objected to such representation. They insisted that Section 7 (a) of the N. I. R. A. gave the majority the right to represent all.

Homes in Kohler Village



They further asserted that they had the majority; but at the same time, they declined to submit any membership lists to prove it.

Coercive tactics that led to violence having failed, in mediation conferences with members of the Chicago Regional Labor Board, the Federation officials offered to trade away, for the time being, all their members' demands as to wages, hours, working conditions, in exchange for "recognition", by which they meant the right to represent all the company's employees.

Their next step was to petition the National Labor Relations Board for a hearing. The board found that the company had not discriminated against union men. They refused to find that there had been any failure by the company to bargain with the union. They stated that the company had played a part in the formation of the Kohler Workers' Association, but refused the union request that this association be ordered dissolved as an illegal organization. Instead, they ordered an election in which both the Kohler Workers' Association and the union would be on the ballot.

The result of the September 27th secret election of Kohler Co. workers shows clearly that the overwhelming majority of employees prefer to be represented by the Kohler Workers' Association rather than by the American Federation of Labor union. Of the votes that were not challenged, 1063 were cast for the Kohler Workers' Association and 643 for the union. The union challenged 368 votes which, it is fair to assume, were cast for the Kohler Workers' Association and the Association protested 207 votes, on account of charges of violence, which probably were cast for the union. The total vote, therefore, was approximately 1431 for the Kohler Workers' Association and 850 for the American Federation of Labor union. Whatever disposition the National Labor Relations Board makes of the contested votes the Kohler Workers' Association has won the election, and the fact remains that the employees as a whole, in a secret ballot conducted by the Government, have definitely repudiated the strikers.

Wages at Kohler have long been higher than in surrounding communities, and higher than the average in Wisconsin industries. They have been as high as in any company in the plumbing industry paid, higher than most. Competent observers have pronounced conditions in the Kohler plant as unusually good.

Continuity of employment and income has been particularly striven for by Kohler Co. Not until 1931 was there any reduction in hours. Not until 1932 was there any reduction in rates of pay.

In August, 1933, immediately after the plumbing industries' code was submitted to the government, and before it had been approved, Kohler Co. put its minimum wage and maximum hour provisions into effect. This brought the minimum wage back to the 1929 level. Wages above the minimum were also raised, almost to the 1929 level.

Enormous inventories were built up by the company in its efforts to provide work—this in face of the fact that residential building, the largest market for plumbing fixtures, dropped to about ten per cent of what it had been in 1928. For several years past the company has

annually sustained heavy losses—far heavier than would have been necessary if production had been limited to the requirements of the market, and if a much smaller number of men had been employed on economical working schedules, which would have meant laying off the large majority.

RESULTS OF STRIKE RIOTS

Top—Shattered windows of the Kohler plant.

Center—Preventing coal reaching company's power plant that supplied water to Kohler Village.

Bottom—Wreckage caused by brickbats hurled into interior of Kohler plant.



\$37,500,000 IN CONSTRUCTION AWARDS

SOUTHERN CONSTRUCTION ACTIVITY

CONSTRUCTION contracts let in the South during September amounted to \$37,498,000. This total exceeded by 10 per cent awards of \$33,800,000 in September, 1933, but compared with the August lettings of \$43,157,000 registered a decline of 13 per cent, resulting in large measure from business uncertainties in the territory affected by the textile strike during the month.

Aggregate construction awards in the 16 Southern States in the first nine months of this year, according to a compilation based on reports published in the *Manufacturers Record Daily Construction Bulletin*, were \$383,685,000, as compared with \$214,797,000 and \$302,030,000 for corresponding months of 1933 and 1932, respectively. The valuation of construction contracts, January to September, 1934, exceeds by 77 per cent the total for the like period of 1933 and surpasses the total of awards in the first nine months of 1932 by 27 per cent.

Public Work Leads

Projects financed in whole or in part by the Federal Government predominate. Road, street and bridge work hold first place considering the dollar value of contracts, aggregating \$149,717,000 in the nine-month period. Industrial and engineering projects, calling for an outlay of \$131,532,000 stand second only to road and bridge work, but here too government-financed projects loom large for the classification includes not only purely industrial enterprises, but dredging, levees, revetments, dikes, sewers, drainage and water works, awards for which aggregate \$74,004,000.

\$155,000,000 For New Plants

Industrial plant awards of \$155,116,000 in the first nine months of this year also include projects financed with Federal assistance, such as municipally owned power systems, port terminal facilities, etc.

Contracts let for levees, revetments and dikes totaled \$32,589,000, January to September, 1934. The major portion of this expenditure provides for curbing the ravages of the Mississippi river and tributaries. Another major project is that in the Lake Okeechobee (Florida) section, calling for an outlay of \$9,000,000. At other points along the Atlantic and Gulf Coasts seawalls and jetties are being built to protect harbors.

	September, 1934		January-September, 1934	
	Contracts Awarded	Contracts to be Awarded	Contracts Awarded	Contracts to be Awarded
General Building				
Apartment and Hotels	\$ 443,000	\$ 249,000	\$2,677,000	\$11,104,000
Association and Fraternal		270,000	415,000	900,000
Bank and Office	194,000	75,000	2,754,000	3,743,000
Churches	130,000	200,000	1,131,000	2,747,000
Dwellings	1,263,000	551,000	13,836,000	22,412,000
Stores	503,000	130,000	3,949,000	5,090,000
	\$2,533,000	\$1,475,000	\$24,762,000	\$45,996,000
Public Buildings				
City, County, Government & State	4,660,000	9,558,000	53,464,000	68,673,000
Schools	2,164,000	3,944,000	24,210,000	68,039,000
	\$6,824,000	\$13,502,000	\$77,674,000	\$136,712,000
Roads, Streets and Paving	\$11,890,000	\$15,734,000	\$149,717,000	\$111,960,000
Industrial and Engineering Projects				
Dredging	2,813,000	652,000	14,849,000	49,080,000
Filling Stations, Garages, etc.	200,000	91,000	2,412,000	2,944,000
Industrial Plants	4,355,000	6,032,000	55,116,000	155,045,000
Levees, Revetments, Dikes, etc.	7,073,000	2,091,000	32,589,000	22,980,000
Sewers, Drainage and Waterworks	1,801,000	10,270,000	26,566,000	111,600,000
	\$16,251,000	\$19,136,000	\$131,532,000	\$341,649,000
Total	\$37,498,000	\$49,847,000	\$383,685,000	\$636,317,000

Closely allied with flood control work are dredging operations in inland waterways, rivers and harbors. Awards totaled \$14,849,000 in the first nine months of this year.

Contracts were let to October 1 aggregating \$26,566,000 for sewer, drainage and water works projects, financed almost without exception with PWA funds.

\$77,000,000 For Public Buildings

Public building construction in the nine-month period ran to \$77,674,000, of which \$53,464,000 represented awards for city, county, Federal and State buildings, such as jails, art museums, court houses, customs houses, schools, etc.

\$24,000,000 For Private Building Work

The most encouraging feature of Southern construction activity this year is in the award of contracts totaling \$24,762,000 for general building projects—financed privately. Residential construction, with awards aggregating \$13,836,000, heads the list. Second in importance considering the dollar value, is store building, awards for which totaled \$3,949,000. Bank and office building construction holds third place with a contract total of \$2,754,000, while apartment house and hotel construction is a close fourth, with awards running to \$2,677,000.

Important Projects

The following news items have been selected from the information presented

during the past month in the *Manufacturers Record Daily Construction Bulletin*. They compose part of the individual building and engineering undertakings—proposed, to be let and awarded—in the Southern States from which the totals given above have been compiled.

Proposed Work

Ala., Birmingham—R. B. Wilby Theatre Co., R. M. Kennedy, Dist. Mgr., plans erecting \$100,000 theatre at Five Points; modernistic design; seating capacity 1000.

Ark., Hot Springs—City, having detailed plans prepared by Black & Veatch, Engrs., Kansas City, Mo., for 2 disposal plants; probably 2 months before bids can be taken; total estimated cost \$300,000 which includes \$39,000 for enlarging existing sewers.

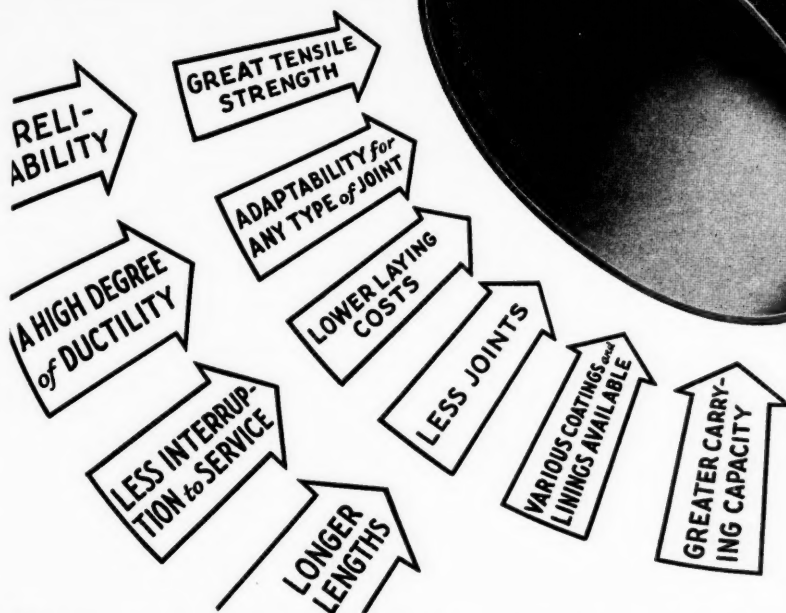
Fla., Miami Beach—School Trustees appointed August Geiger, 731 Lincoln Road, architect for two elementary and one high school; \$700,000; Russell T. Pancoast, associate architect on 41st Street grade school; Robert L. Week, 2629 Biscayne Blvd., Miami, associate architect for South Beach school; Robert A. Taylor, 605 Espanola Way, associate architect for gymnasium; Henry J. Moloney, 706 Professional Bldg., Miami, associate architect for alterations to Central elementary school.

Fla., Tampa—Peninsular Refining Co., L. H. McIntire, Tampa, plans oil refinery; cost \$300,000.

Ga., Cedartown—City, L. W. Turner, City Engr., has plans under way for municipal hall to house fire station and auditorium; funds voted; \$42,500; Odiss Clag Poundstone, Archt., 101 Marietta St., Atlanta, Ga., brick, rein. conc. hollow tile, struc. steel, comp. roof, stone trim.

(Continued on page 34)

WATER MAINS AT THEIR BEST!



To meet all the exacting demands of modern water main service, and afford both safety and economy for the lives and values affected, the pipe selected must have an unusual number of features—a combination hardly to be expected in one material. But there is such a material. **Steel**—uniform and dependable in character, well fabricated into pipe—is that material. Reliability of steel pipe has been proved by the experience of many years. More and more cities are adopting it for street mains. Its inherent characteristics make it an ideal material for this type of service.

For steel pipe at its best, specify NATIONAL, the scientifically designed, expertly made, perfectly standardized product of the largest manufacturer of tubular products in the world. Check the points of merit shown above. NATIONAL engineers will furnish information on request.

NATIONAL TUBE COMPANY • Pittsburgh, Pa.

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STEEL WATER MAINS

Representative Industrial, Engineering And Building Work In The South. Further Details And Complete Record Of Southern Construction And New Enterprises Are Given In The MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN

Proposed Work

(Continued from page 32)

Ga., Elberton—Allen Granite Co., J. Cleve Allen, and National Granite Co., John A. Logan, erecting granite monument finishing plant; 348 x 54 ft.; install 2 electric cranes, sandblasts, polishing and surfacing machines, etc.; company owns deposit of granite near Elberton operating as American Granite Quarries, Inc., W. H. Allen, Pres., Atlanta.

Ga., Macon—City, Jesse Mitchell, Chrmn., has plans by Wiedeman & Singleton, Engrs., Candler Bldg., Atlanta, for filtration plant, Third and Fourth Sts., to cost \$60,000.

Ga., Savannah—R. M. Demer, Pres., Colonial Oil Co., Savannah Bank & Trust Co. Bldg., will erect storage tanks for petroleum products, capacity 100,000 bbls. on Smart tract, west of terminal on Savannah River; also construct 150 ft. wharf for docking of tankers and dredge river in front to depth of 26 ft.; move distribution plant to tract with frontage of 500 ft. on river and depth of 1200 ft. on river.

Ky., Eddyville—Town Council plans installing pumping machinery and auxiliary equipment, etc.; has fund of \$40,000; J. S. Watkins, Const. Engr., Lexington, Ky.

Ky., Mayfield—Treasury Dept. has supplemental low bid of \$45,600 from Lundberg-Richter Co., Oceanport, N. J., for extending and remodeling post office.

Louisiana—State Highway Comsn., Baton Rouge, probably ask bids by Nov. 15 for completion of bridge over Ouachita River at Monroe and bridge over Red River at Alexandria.

La., New Orleans—Goodyear Service, Inc., subsidiary of Goodyear Tire & Rubber Co., erect service station Canal St. between Villers and N. Robertson; cost \$50,000; Tom A. Cheny, Local Mgr.

La., Ringgold—City plans water works improvements; \$39,000 loan approved; F. P. Joseph, Engr., Glenmora.

La., Ringgold—City, C. E. Tomme, Mayor, plans \$44,000 water works improvements, including 7,000 ft. of 6-in. cast iron, 5,500 ft. of 4-in., 25,000 ft. of 2-in. galv. iron pipe; 50,000 gal. conc. reservoir; 100 cu. ft. air compressor; tower and tank, etc.; F. P. Joseph, Engr., Glennora, La.

La., Thibodaux—Lafourche Parish School Board has plans completed for 2-story brick high school; 10 classrooms, laboratory, study hall and locker rooms; to be built under supervision of Favrot & Reed, 301 Nola Bldg.

Md., Baltimore—Talbot Building Co., Ralph Talbot, 5910 Harford Rd., acquired site Inglewood Ave. between Harford and Old Harford Rd., for erecting 20 dwellings; brick; 2 stories.

Md., Baltimore—Rust Engineering Co., Pittsburgh, Pa., has contract for feed plant alterations and addition, 2101 E. Fort Ave., for Southern States Co-Operative Mills; Carlstrand Engineering Co., 10 W. Chase St., Engrs.; cost \$125,000.

Mo., Bland—City, D. S. Branson, Mayor, receives bids soon for \$44,500 water works and \$25,500 sewer system; PWA loan and grant allotted; George E. Wells, Inc., 420 Security Bldg., Engr., St. Louis.

N. C., Charlotte—M. R. Marsh, Archt., Charlotte, preparing plans for rebuilding Imperial Theatre, S. Tryon St., owned by T. E. Hemby; North Carolina Theatres, Inc., Lessee; seating capacity 1200; install new heating plant; marquet over the entrance; cost approximately \$75,000.

N. C., Roanoke Rapids—Virginia Electric & Power Co., Richmond, Va., plans rebuilding burned portion of power plant.

S. C., Columbia—Sanatee-Cooper Authority, selected Murray & Flood, 369 Lexington Ave., New York, as engineers for proposed hydro electric and navigation project on lower state rivers; will probably apply for \$25,000,000 loan.

Tenn., Jamestown—City probably issue call for bids Oct. 26 for water works improvements; J. E. Switzer, Engr., Engineering Bldg., Knoxville.

Tenn., Johnson City—Veterans Administration, Washington, ask bids sometime in Fall on \$395,000 alterations to group of 30 buildings at Veterans facility; replace plumbing, revamp heating systems; buildings of brick, stone and terra cotta construction.

Tenn., Nashville—Board of Education call bids about Jan. 1 for construction of high school; Donald W. Southgate, Archt., Nashville Trust Bldg.

Tex., Austin—Plans for \$1,800,000 Main Building-Library extension at University of Texas will be ready for release to bidders about November 1. Plans for two dormitories, \$210,000 and \$198,000 each will be ready about December 1.

Tex., Austin—Eugene V. R. Thayer, bondholder of old Central Texas Hydroelectric Co., acquired Buchanan Dam, located 60 miles north-west of here on Colorado River; plans are to complete dam at additional construction cost of \$4,500,000, loan having been obtained from PWA; will operate as a public agency to be known as Colorado River Authority; under agreements the properties will be transferred by successful bidder to

the new Colorado river company; work will probably start in 60 days; Fegles Construction Co., Minneapolis, Minn., were contractors for finished portion of work.

Tex., Buffalo—Buffalo Independent School District, R. L. Price, Pres., to ask new bids on construction of \$32,000 school; brick, stucco, 2 stories, 140 x 127 ft., oak floors, wood sash, concrete foundation, asphalt shingles, steam heat; Theodore S. Maffitt, Archt., Palestine.

Tex., Dallas—The program of the Texas Centennial Comsn., Cullen F. Thomas, Pres., will involve construction of not less than 20 large structures to augment the facilities provided by the permanent buildings at the State Fair Grounds, where the state centennial will be held in 1936; additional property will be acquired and existing structure removed; extensive landscaping and beautification work planned; City of Dallas to call election on \$3,000,000 city bonds for purpose; Dallas City Centennial Comsn. to raise \$2,000,000 from private sources; Texas Centennial Comsn. to provide or cause to be provided the sum of \$15,000,000.

Tex., Dawson—City, W. W. Johnson, Mayor, plans \$42,000 water works extension, supply mains, etc.; A. F. Mitchell, Engr.; PWA project.

Tex., Houston—City, Dick Lewis, City Atty., will probably let contract in about 6 weeks on Magnolia Park gas system; has allotment of \$93,000.

Tex., Jewett—City, T. C. Evans, Mayor, plans water works improvements; Col. David M. Duller, Engr., 1618 Second Natl. Bank Bldg., Houston.

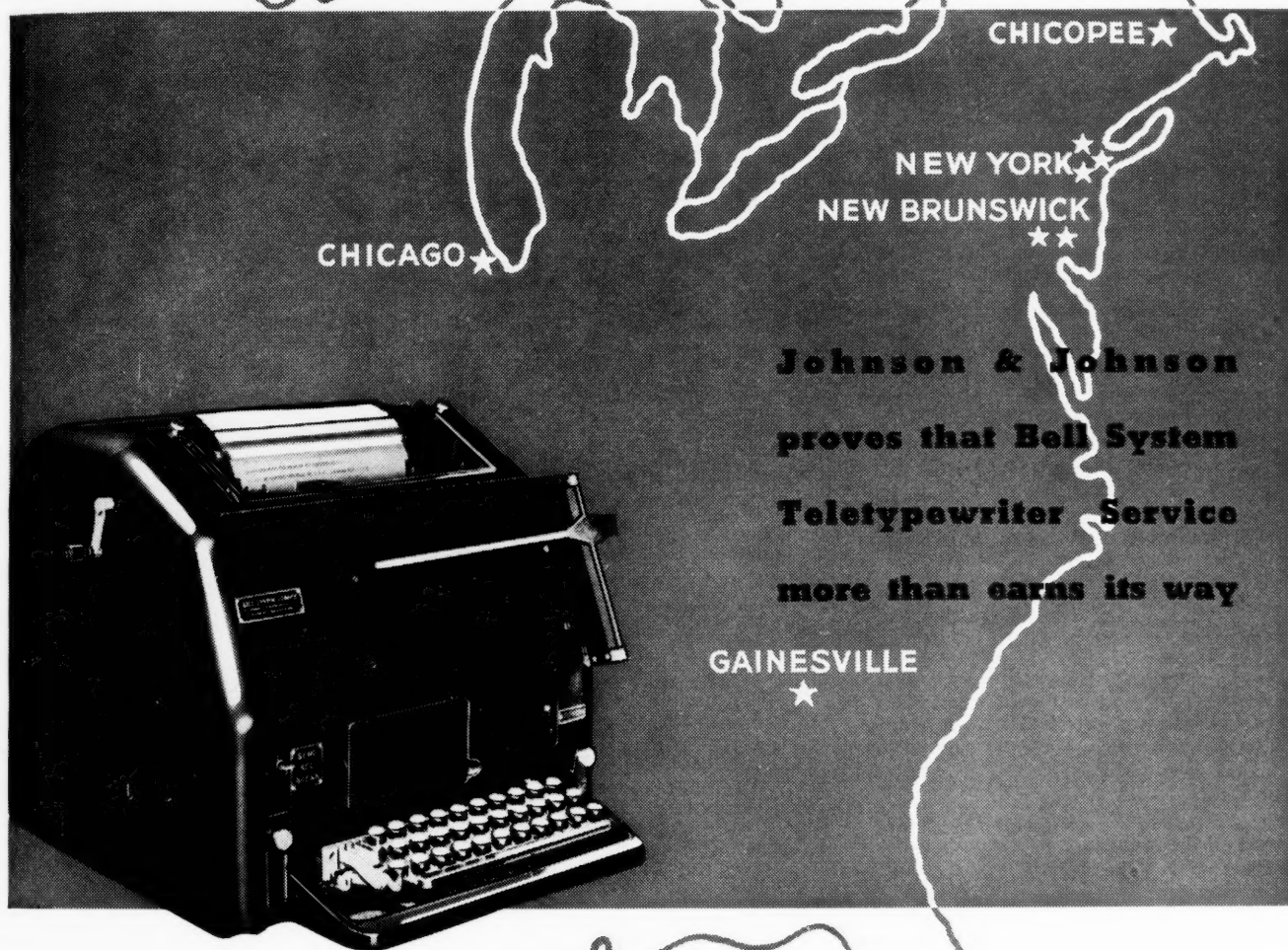
Tex., Naples—City, H. R. F. Helland, San Antonio, Const. Engr., will probably open bids in 30 days for \$45,300 water works; 2595 ft. of 8-in., 9498 ft. of 6-in., 11,710 ft. of 2-in. c. i. pipe; 50,000 gal. reservoir; 50,000 gal. elevated tank and tower; pump station, etc.

Tex., Pilot Point—City has plans in progress by Hawley, Freese & Nichols, Engrs., Capps Bldg., Fort Worth; for sewer system; loan and grant of \$49,000 approved.

Tex., San Antonio—Plans are completed for three proposed local schools; North Side junior high school, Lake Blvd., W. Mulberry and W. Huisache and Kampman Blvd., \$200,000, to be 2 stories, L-shaped, 240 ft. long, 15 classrooms, cafeteria and kitchen, library, locker rooms, shops, offices, auditorium; of brick and reinforced concrete construction; Phelps & DeWees, Gunter Bldg., School Archts., Allee B. and Robert M. Ayres, Smith-Young Tower, and Robert B. Kelly, Assoc. Archts., L. D. Royer, Mech. Engr., Smith-Young Tower; Lilly & Drought, Engr.; South Side junior high school, S. Pine, Astor and Fair Ave., 2 and 3 stories, E-shaped, width 496 ft., brick, structural clay tile and reinforced concrete, gymnasium, cafeteria, armory, auditorium and library; \$750,000, Phelps & DeWees, Gunter Bldg., School Archts.; Ralph Cameron, Majestic Bldg., George Willis, Builders Exchange Bldg., and Herbert S. Green, 207 W. Cavallos St., Assoc. Archts.; W. E. Simpson, Inc., Milam Bldg., and J. W. Beretta Engineers, Inc., National Bank of Commerce Bldg., Assoc. Struc. Engrs.; L. D. Royer, Mech. Engr., Smith-Young Tower; West Side elementary school, \$31,000, Phelps & DeWees, Gunter Bldg., School Archts.

(Continued on page 36)

They started with 2 now they have 8



**Johnson & Johnson
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Teletypewriter Service
more than earns its way**

JOHNSON & JOHNSON, manufacturer of surgical dressings, has solved its principal communication problems with Bell System Teletypewriter Service. With it, customers throughout the country are extended the same service offered to those near New Brunswick, N. J.

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the South. Further Details and Complete Record of
Southern Construction and New Enterprises Are
Given in the MANUFACTURERS RECORD
DAILY CONSTRUCTION BULLETIN**

Bids Asked

(Continued from page 34)

Tex., Silsbee—Silsbee Independent School District has plans under way by Liveway & Wiedeman, San Jacinto Life Bldg., Beaumont; \$24,000.

Tex., South San Antonio—Phelps & De-wees, Gunter Bldg., San Antonio, has plans nearing completion for high school and gymnasium for Southern San Antonio Independent School District, B. Z. Hughes, 349 Main Ave.; brick, structural clay tile, structural steel and reinforced concrete; \$80,000.

Tex., Terrell—A. E. Thomas, Dallas, is architect for proposed \$110,000 ward building at Terrell State Hospital; brick, structural clay tile, structural steel, stone and reinforced concrete; project under State Board of Control, Claud D. Teer, Chmn., Austin.

Tex., Van Horn—Van Horn Common School District has plans under way by Trost & Trost, Two Republic Bldg., El Paso, for gymnasium and home economics building; gymnasium, 1 story, 90 x 60 ft.; home economics Building, 23 x 34 ft.

Tex., Wichita Falls — Townes & Funk, Amarillo, are architects for proposed \$50,000 addition to administration building at Wichita Falls State Hospital; brick, structural clay tile, structural steel, stone, reinforced concrete; project under State Board of Control, Claude D. Teer, Chmn., Austin.

Fla., Bay Pines—Veterans Administration, Construction Service, 764 Arlington Bldg., Washington, D. C., opens bids Oct. 30 for hydraulic fills and wood bulkheads for Veterans facility.

Fla., Tallahassee—City opens bids Oct. 16 for construction of 3-story brick armory; Edward D. Fitchner, Archt., Tallahassee.

Fla., Tallahassee—The \$64,000 armory, for which City, Wm. R. Galt, City Mgr., opens bids Oct. 16, will be 81 ft. 8 in. x 133 ft., 3 stories, steel, reinforced concrete and brick construction, wood floors, cement basement floors, concrete foundation, metal sash, wood deck with built-up roof; E. D. Fitchner, Archt., Tallahassee.

Ga., Fort Valley — Fort Valley Normal and Industrial School opens bids Nov. 1 for \$35,000 home economics building; frame partitions, steel and heavy timber, steel and reinforced concrete, tile, brick walls, stone exterior trim, 2 stories, 48 x 134 ft., stone, cinder block backing, oak floors on wood, in mastic, tile; wood, metal sash, vacuum heat; S. J. Makielski, Archt., Barracks Road, University, Va.

Ga., Waycross—Treasury Dept., Procurement Division, Public Works Branch, Washington, D. C., opens bids Oct. 15 for extending and remodeling post office and court house.

KENTUCKY — State Highway Comsn., Frankfort, opens bids on October 19, for projects in various counties:

Ky., Murray—City receives bids Oct. 19 for sewerage system and sewage disposal plant; cost \$65,000; The J. N. Chester Engineers, Engrs., Pittsburgh, Pa.

La., New Orleans—Bd. of State Engrs., 207 New Orleans Court Bldg., receives bids Oct. 15 for constructing back protection levee in St. Bernard Parish to be known as Paris Rd., Lake Borgne Canal Back Protection Levee, Lake Borgne Basin Levee Dist., St. Bernard Parish; appropriate contents 270,000 cu. yds. approx. length 60,000 ft.; work to begin before Oct. 25.

La., New Orleans—Sewerage and Water Bd., Room 502, No. 526 Carondelet St., receives bids Nov. 30 for furnishing labor and material on percentage basis for waterworks, sewerage and drainage construction during year 1935.

Miss., Meridian—Dept. of Agriculture, Division of Purchase, Sales and Traffic, Washington, D. C., opens bids Oct. 19 for cold storage fruit and vegetable building.

Mo., St. Louis—City, Wm. C. E. Becker, Ch. Engr., Dept. of Bridges and Buildings, opens bids Oct. 16 for construction of reinforced concrete viaduct.

Okla., Clinton—Treasury Dept., Procurement Division, Public Works Branch, Washington, D. C., opens bids Oct. 26 for construction of post office.

Tex., Benjamin—Knox County opens bids about Oct. 25 for construction of \$100,000 court house; brick, stone, terra cotta, 2 stories, 70 x 110 ft.; cement, tile, terrazzo and composition floors; steel casement sash; reinforced concrete foundation, tar & gravel roof, steam heat; Voelcker & Dixon, Inc., Archts., 913½ Indiana Ave., Wichita Falls.

Tex., Dalhart—Treasury Dept., Procurement Division, Public Works Branch, Washington, D. C., opens bids Oct. 23 for construction of post office.

Tex., Kingsville—Treasury Dept., Procurement Division, Public Works Branch, Washington, D. C., opens bids Oct. 25 for construction of post office.

Tex., Quanah—Hardeman County, J. E. Magee, Judge, have plans completed about Oct. 20 for \$80,000 hospital; 2 stories and basement, 40x110 ft., brick, structural clay tile, stone and reinforced concrete; Voelcker & Dixon, Archts., 913½ Indiana Ave., Wichita Falls.

Tex., Wells—City, J. H. Dubose, Mayor, has plans nearing completion, probably released for bids about Oct. 15 for water works.

VIRGINIA—Dept. of Highways, Richmond, Va., C. S. Mullen, Ch. Engr., opens bids Oct. 23 for construction of bridge over Nansemond River on Route 460 in Suffolk, Project 333.

W. Va., Grafton—U. S. Engr. Office, 1506 Kooman Bldg., Pittsburgh, Pa., receives bids Oct. 16 for Tygart River reservoir dam near Grafton. See Want Section.

W. Va., Parkersburg—Treasury Dept., Procurement Division, Public Works Branch, Washington, D. C., opens bids Oct. 25 for remodeling court house.

Contracts Awarded

ALABAMA—State Highway Dept., Montgomery, let contract at \$49,091 to Dunn Construction Co., Birmingham, for 2.071 mi. road in Goodwater, Coosa County.

Ala., Anniston—Treasury Dept. let contract at \$140,450 to Upchurch Construction Co., Montgomery, for post office extension.

Ala., Anniston—Kilby Car & Foundry Co. install electric steel furnace, under construction at Pittsburgh Lecomel Furnace Corp's plant, foot of 32nd St., Pittsburgh, Pa.; cost \$100,000.

Arkansas—U. S. Engineer, Memphis, let contract to C. W. Greeson, Baton Rouge, La., at \$200,000 for contracts R-3432, B-3439 and R-367, in connection with constructing approximately 2,720,000 cu. yd. of earth work in White River levee district and Clarke Brothers Construction Co., Clinton, Iowa, at \$235,144, for contracts R-361, R-362 and R-363.

Ark., Tuckerman—G. C. McEachin Construction Co., Little Rock, has contract at \$12,083, for complete water works system; F. A. Pritchett, 701 Wallace Bldg., Little Rock, Engr.

D. C., Washington—David Lynn, Archt. of Capitol let contract to H. L. Harrison & Son, Inc., 1060 Broad St., Newark, N. J., at \$38,886, for water works extension.

D. C., Washington—Harwood-Nebel Construction Co., has contract at \$167,900 for miscellaneous changes Dept. of Agriculture building; E. H. Sheldon & Co., Muskegon, has contract at \$389,720 for scientific laboratory equipment.

Fla., Pensacola—Spearman Brewing Co., Guy M. Spearman, Pres., constructing brewery east side of Barrancas Ave. near its intersection with Government St.; C. A. Fulghum, Contr.; struc. steel handled by Ingalls Iron Co., Birmingham; building will be 3 stories; struc. steel with conc. finish; investment of \$250,000.

Fla., Plant City—Treasury Dept. has awarded contract at \$40,644 to N. S. Ikerd, Bedford, Ind., for post office.

Fla., Winter Haven—James C. Miller, Campbellsville, Ky., has contract at \$47,555 for construction of post office.

Ga., Atlanta — State Highway Board let contract at \$167,198 to North-Eastern Construction Co., New York and Winston-Salem, N. C., for construction of Peters Street bridge.

Ga., Augusta—City has awarded contract at \$90,400 to Claussen-Lawrence Construction Co., Augusta, for alterations and additions to old police headquarters for police barracks; Seroggs & Ewing, Archts., S. E. C. Bldg.

Ga., Augusta—War Dept. awarded contract at \$977,309, to Arundel Corp., Pier 2, Pratt St., Baltimore, Md., to erect Savannah Bluff Lock and dam in Savannah River, 10 miles south of Augusta.

(Continued on page 38)

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extraordinary resistance to damage from shocks in transportation, handling and laying. With reasonable care breakage is practically unknown. Super-de Lavaud is tougher, stronger and more ductile pipe because it is *cast without chill in a metal mold* by a patented process of centrifugal casting. Send for booklet.

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Contracts Awarded

(Continued from page 36)

D. C., Washington—Treasury Dept. let contract at \$1,212,633 to John McShain, Philadelphia, for construction of Internal Revenue building.

Ga., Cornelia—Smith-Hendrix Co., Barnett Natl. Bank Bldg., Jacksonville, Fla., has contract at \$35,000 for water works extension; J. B. McCrary Co., Inc., Atlanta, low on distributing system; Robert & Co., Engrs., Atlanta, Ga.

Ga., Sparta—Hancock County let contract at \$60,000 to McCowen Brothers, Marlow, Ga., for school; Dennis & Dennis, Archts., Mulberry St., Macon.

Ky., Richmond—Eastern Kentucky State Teachers College let contract at \$88,151 for addition to library, to Leo J. Braielmaier, Cincinnati, Ohio.

Louisiana—U. S. Engr. Second New Orleans Dist., N. O., let contract at \$359,850, to Brooks-Callaway Co., Atlanta, Ga., for work on Melville Ring Levee.

MARYLAND—State Roads Comsn., Baltimore, let contracts for projects in following counties:

Baltimore—Contract B-318-2-48-P. W. A., triple span, steel girder bridge over Gunpowder Falls on Philadelphia Road Relocation, Forbes-Murphy Construction Co., 326 St. Paul St., Baltimore, \$75,848;

Charles—Contract Ch-139-1-32, Federal Aid Project No. N.R.H.-280-B (1935), from a point on Cross Roads-Liverpool Road, west of Cross Roads toward Riverside, distance of 3.11 miles gravel. Pembroke & Gasporovic, Park Hall, Md., \$48,900;

Frederick—Contract F-194-1-59, Federal Aid Project No. N.R.H.-81-Unit 1 (1935), single span, steel truss bridge, with concrete floor and concrete substructure, approaches, over Catocin Creek on road from Middletown to Burkittsville, M. J. Grove Lime Co., Lime Kiln, Md., \$53,442;

Harford—Cont. H-186-48, Federal Aid Project No. N.R.H.-335-D, along Philadelphia Rd. Relocation from east side of Otter Creek to Belcamp Station, 1.60 miles grading and drainage for dual highway, Potts & Callahan, First National Bank Bldg., Baltimore, \$81,266;

Md., Baltimore—L. R. Spelshouse, has contract for addition to Cloverland Farms Dairy, 1911 Windsor Ave.; brick; 1 story; 90 x 17 ft.

Md., Baltimore—Consolidated Engineering Co., Franklin and St. Paul Sts., Baltimore, received contract at \$1,234,000 for constructing assembly plant Broening Highway near Holabird Ave., for Chevrolet Motor Co., Detroit, Mich.; main structure, conc. 1-story with mezzanine floor, 602x890 ft.; office building rein. conc., 2 stories and basement, 50x245 ft., power house, rein. conc. and steel, 52x95 ft.; service building, steel, conc. and brick, 85x245 ft.; shipping building, (loading dock), 50x315 ft.; watchman's office and garage;

Jones & Laughlin Steel Corp., Pittsburgh, Pa., has contract for 5235 tons of struc. steel and for 500 tons of rein. steel through J. A. Utley, Penobscot Bldg., Detroit, Mich.;

Harry T. Campbell & Sons, Towson, have contract for 5000 ft. of railroad tracks and for excavation of railroad tracks;

Separate bids will be received for plumbing, heating and electrical work; Albert H. Kahn, Inc., Archt., Detroit, Mich.

Md., Berlin—City let contract at \$81,897, to Virginia Engineering Co., Newport News, Va., for contract No. 1, sewers, and at \$11,700, to George & Lynch, Dover, Del., for contract No. 2, sewage disposal plant; Remington, Vosbury & Goff, Engrs., Camden, N. J.

Md., Catonsville—Spring Grove State Hospital let contract at \$106,400 to Cogswell Construction Co., 405 Park Ave., Baltimore, for construction of auditorium; stone, limestone trim, 2 stories, 64x140 ft.; Henry Powell Hopkins, 10 East Mulberry St.; James Posey, Baltimore Trust Bldg., Mechanical Engr., Van Rensseler P. Saxe, Struc. Engr., 100 W. Monument St., all Baltimore.

Mo., Independence—Westinghouse Electric & Mfg. Co., has contract at \$65,966, for 3000 kw. turbo generator and at \$18,035, for 5000 square feet surface condenser, C. H. Carr, & Co., Kansas City, Mo., for automatic self-cleaning air filter; city will call for bids later for boiler feed pumps, air preheater and piping, also for turbine foundations and building improvements; Black & Veatch, Conslt. Engr., Mutual Bldg., Kansas City.

Mo., St. Louis—Welsbach Street Lighting Co. of America, 317 N. Eleventh St., awarded contract at \$428,587, for furnishing standards and maintaining street lighting system.

Mo., Washington — City let contract at \$212,187 to Missouri Valley Bridge & Iron Co., Leavenworth, Kansas, for substructure for bridge over Mississippi River at foot of Franklin Street; let contract for superstructure to Stupp Brothers Bridge & Iron Co., St. Louis, Mo., at \$345,493; project to have reinforced concrete roadway of 22 ft. clear width and is to be for vehicular traffic only.

N. C., Charlotte—Mecklenburg County let contracts for equipment for schools; Carolina School Supply Co., Charlotte, for desks, chairs and tables; Southern Desk Co., Hickory, for stationary desks, Standard School Equipment Co., Siler City, tables for small children.

N. C., Durham—Durham County, D. W. Newsom, Mgr., let contracts for various schools; Bethesda school, Home Construction Co., Durham, \$31,787; heating, Rowe-Coward Co., Durham, \$4184; plumbing, Paschall Brothers, Durham, \$1150; Bragtown school additions, Home Construction Co., \$9873; heating, Paschall Brothers, Durham, \$1500; plumbing, Paschall Brothers, Durham, \$65; new school for Durham, George W. Kane, Durham, \$71,498; heating, Bagwell-Small Co., Durham, \$8734; plumbing, Highsmith-Wells Co., Durham, \$6659.

N. C., Lexington—North Eastern Construction Co., Winston-Salem, has contract at

\$85,000 for water works system; PWA project.

OKLAHOMA—State Highway Comsn., Oklahoma City, let contracts for projects in following counties:

Texas—2 bridges on United States Nos. 54 and 64, beginning in Optima and extending toward Hooker, T. C. Ottinger, Hinton, \$22,634;

Grady—4.509 mi. grade and drainage, feeder road beginning in Rush Springs extending west, E. E. Honaker, Clinton, \$25,761.

S. C., Irmo—Board of Education let contract at \$92,900 to W. A. Cray & Son, Columbia, for school; J. L. Powers, Bennettsville, at \$15,930 for heating and plumbing; A. C. Daniel, Supt.;

Tennessee — U. S. Engr., P. O. Box 97, Memphis, let following contracts for constructing approximately 3,710,000 cu. yds. of earthwork in Little River, Cairo Drainage, Reelfoot, and Lower St. Francis Levee Dist.; Items R-50 A. C. and L-42A to Forcum-James Co., Dyersburg, Tenn.; M-13-0.5 A. C. to Edward E. Morgan Co., Inc., Jackson, Miss.; R-219A, R-219B, R-219C and R-219D to Brooks-Callaway Co., Atlanta, Ga.; R-268 to Driver Co., Memphis.

Tenn., Memphis — City let contract at \$107,954 to Wessell Construction Co., for construction of juvenile court building.

Tenn., Nashville—City let contract at \$142,950 to Foster & Creighton Co. for construction of Demonbreun Street viaduct; structural steel and reinforced concrete; over Tracks of Nashville Terminals; Freeland, Roberts & Co., Engrs., 1207 Independent Life Bldg., Nashville.

Tex., Dallas—Austin Bridge Company and Austin Road Co. have contract at \$388,691 for work in connection with Main, Elm and Commerce Street underpass;

Tex., Del Rio—N. A. Saigh Co., Builders Exchange Bldg., San Antonio, has contract for installing 12 miles of 4-in. gas line for Texas Gas Utilities Co., Del Rio; all welded steel; line to run from Zavalla County gas fields to city limits of Uvalde; cost \$45,000; H. C. Wallace, Ch. Engr. in charge of construction.

Tex., Port Isabel — Padre Island Bridge Co. let contract to James & Littrell, Ruston, La., for construction of causeway across Laguna Madre, connecting Port Isabel with Padre Island.

Tex., San Benito—Southwestern Pipe Co., San Benito, has contract at \$54,000 for approximately 33 miles of conc. pipe for \$400,000 irrigation system of Adams Gardens tract by Cameron County Water Control and Improvement Dist. No. 19.

Tex., Wichita Falls—State Board of Control let contract at \$68,900 to R. F. Ball Construction Co., Fort Worth, for female ward No. 5, Wichita Falls State Hospital.

Va., Langley Field — National Advisory Committee for Aeronautics let contract at \$217,700 to J. B. Eurell Co., 225 S. 15th St., Philadelphia, Pa., for construction of full-speed wind tunnel.

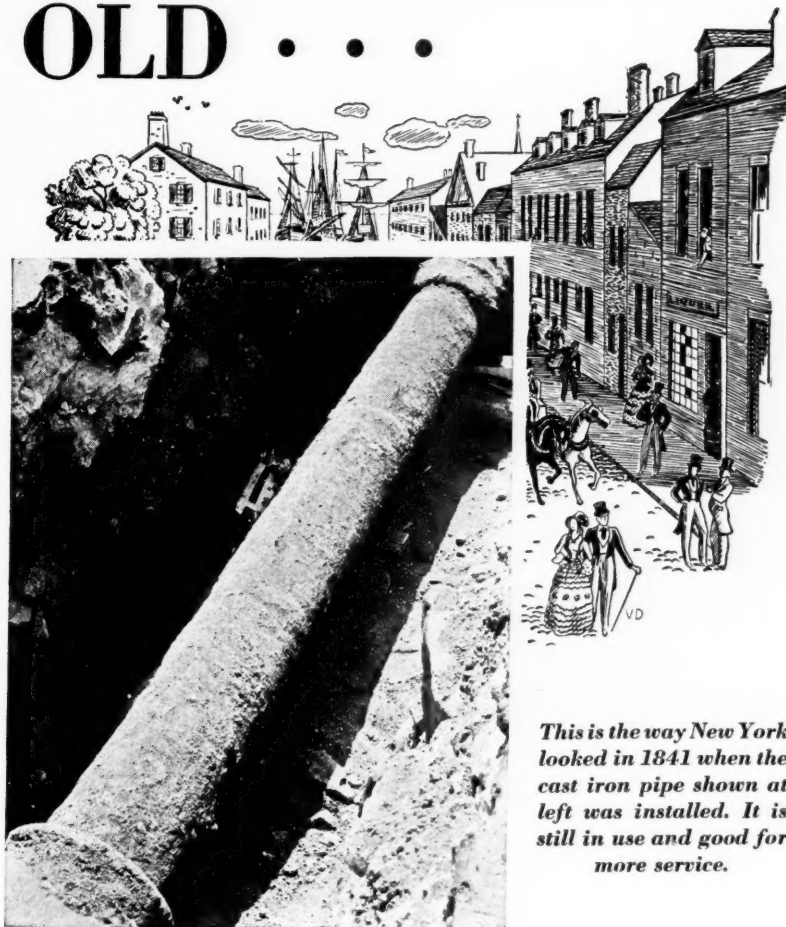
Va., Salem—Roanoke County let contract at \$61,268 to Martin Brothers, Box. 433, Roanoke, for construction of school.

Va., Staunton—Virginia School for Deaf and Blind let contract at \$91,883 to Blackwell Engineering Co., Richmond, for construction of building to replace Tyler Hall; heating to H. C. Croft, Staunton.

W. Va., Newell—Edwin M. Knowles Pottery, J. R. McDonald, Sec., constructing 2 story, brick, experimental laboratory.

93 YEARS OLD . . .

and still
good for
more years
of service



This is the way New York looked in 1841 when the cast iron pipe shown at left was installed. It is still in use and good for more service.

THE CAST IRON PIPE shown in the above untouching photograph is part of a water main installed in the city of New York in 1841. Recently it was exposed to the light of day for the first time in 93 years when a construction crew removed a section of the pipe to cut in a valve. On inspection the removed section of pipe proved to be in excellent condition indicating that this old cast iron main will continue to serve New York's taxpayers, and save them money, for many years to come.

Cast iron mains still in use after serving 100 to 200 years, and longer, were recently uncovered and inspected in England, France, Germany and the United States. All were in satisfactory condition for

further service. Thus, evidence accumulates to prove that the useful life of cast iron pipe is *more than a century*.

The reason for the long life and low maintenance cost of cast iron pipe is its effective resistance to rust. Cast iron is the one ferrous metal for water and gas mains, and for sewer construction, that will not disintegrate from rust. This characteristic makes cast iron pipe the most practicable for underground mains since rust will not destroy it.

For further information, address The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 309 Peoples Gas Building, Chicago, Illinois.

Methods of evaluating bids now in use by engineers rate the life of cast iron pipe at 100 years minimum

CAST IRON PIPE

Look for this



trade-mark

OCTOBER NINETEEN THIRTY-FOUR

39

ROADSIDE IMPROVEMENT IN FLORIDA

By

T. B. Massie,

Engineer Roadside Improvement,
State Road Department of Florida, Tallahassee

ROADSIDE improvement is a by-product in road-building that is properly conceived.

Had unusual foresight been employed in the original conception and construction, there would be no necessity for the present movement for beautification. There is, however, no occasion for censor because of this lack of foresight for it is quite probable that public thought and financing would not have backed a "long-headed" engineer in early day road-building.

Two major errors in early road work were: First, the lack of high class designing of earthwork, and, second, the failure to secure adequate widths of rights of way.

The first error was made because of a false idea of economy. Efforts centered on putting down a high class pavement, and in saving money by slighting the complementary earthwork. Had generous design of flat slopes, protection of side ditches against erosion, etc., been employed at that time, appreciable savings in annual maintenance cost would have resulted, and one of the primary essentials of good appearances would have been established.

The second error would have been avoided, had the engineer given thought to providing room for future development in pavement widths, double drives,

etc, or even to securing a width sufficient to accommodate a generous design of earthwork. Had this foresight been used, the other elementary principle in appearance would have been accomplished, that of the existence of an orderly width of right of way beyond the actual limits of earth work.

The State Road Department of Florida in approaching the problem of roadside improvement in a logical manner is concentrating its initial efforts on the correction of the above two fundamentals. After this is accomplished the scope of roadside development is unlimited, but without it, the plantings seem out of place against existing background.

A definite campaign to bring 66-foot and 100-foot rights of way up to a width of 200 feet and to put them in orderly condition is under way. Also, a higher type of design is incorporated in new construction earthwork, and the job of reconditioning old earthwork is being done in a workmanlike manner, both by the Maintenance Department and the Roadside Improvement Department. The results on this reconstruction of earthwork have been so satisfactory that it will be carried forward on an enlarged scale.

By undertaking what are considered primary essentials in beautification work, the Florida Department has accomplished two other factors, namely: Safe-

Part of an 18-mile Development on a 200-foot Right of Way

The ample right of way permitted the flattening of slopes and reclaiming of ditches to minimum depth requirements, thereby providing added safety and decreasing annual maintenance cost. Grass is planted on all slopes. An orderly width of clean right of way exists beyond the point of the slopes.

ty to traffic, and savings in maintenance costs for all time.

That the department is warranted in spending monies to further traffic safety is indisputable. Steep slopes and eroded side ditches are hazards. The reworking of earthwork to flat slopes, ditches brought back to minimum depth requirements and protected against further erosion, lessen hazards. Flattened backslopes on the inside of existing curves add greatly to sight distances.

A substantial saving in routine maintenance budget results through the substitution of high-type designed earthwork for the old type. Front and back slopes flat enough to take a grass cover, correct erosion, and at the same time permit the use of motor mowing equipment to replace handcutting operations. Flat front slopes permit elimination of much existing guardrail, thus removing an item of considerable continuous maintenance cost. Side ditches that are subject to erosion if protected by paving eliminate another continuous maintenance charge.

Again it is pointed out that roadside improvement is a by-product, for if constructive engineering thought is put to work you will accomplish—safety—economy—and beautification.

Florida And Georgia Truck Agreement

George H. Wilder, Florida motor vehicle commissioner, announces a reciprocal trucking agreement between the motor vehicle departments of Florida and Georgia which permits trucks of either state to service a regular trade area in the other state not more than four times a month without requiring them to purchase a state license for the other state. The agreement was reached after many months of negotiations.



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100!

The Ohio Power Shovel Company
Lima, Ohio

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Without obligation please send me copy of Bulletin checked.

Name _____

Address _____ State _____

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TYPE ☐ 3/4 yard capacity.

TYPE ☐ 1 yard capacity.

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TYPE ☐ 1 1/2 yard capacity.

TYPE ☐ 1 3/4 yard capacity.

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Lima type 701

1 3/4 Yd. SHOVEL
30 TON CRANE



LIMA 302

3/4 YARD SHOVEL-CRANE-DAGLINE-BACKDIGGER



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1 YARD SHOVEL-CRANE-DAGLINE-BACKDIGGER



LIMA 502

1 1/2 Yd. SHOVEL
20 TON CRANE



LIMA 601

2 Yd. SHOVEL
25 TON CRANE



THESE bulletins illustrate and describe LIMA'S complete line of shovels, cranes, draglines and backdiggers, all of which are offered in sizes and types to exactly fit your requirements.

Shovel sizes range from 3/4 cubic yard to 1 3/4 cubic yard capacities, inclusive, and in cranes the capacities range from 12 to 30 tons. All machines can be equipped for gasoline, Diesel or electric power.

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1 YARD
1 1.4 YARD
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CAPACITIES

IRON, STEEL AND METAL MARKET

WITH the opening of the fourth quarter, following three of the poorest business months for the steel industry since the bank holiday, producers are more hopeful. As the third quarter drew to a close it appeared the downward trend had been checked. Still the increase in steel works operations to 25 per cent brings the rate below the 35 to 40 per cent minimum required for profits.

Factors contributing to the brighter outlook include: Settlement of the textile strike; increased buying of sheets by automobile makers working on new models; prospects for increased purchases by the motor industry this month; demand for agricultural equipment is on the up-grade; speeding-up of projects in wide variety, such as dams, bridges, seawalls and similar structures, financed with PWA funds; a modest increase in miscellaneous buying of finished steel items, indicating that the "light industries" are benefiting through the wholesale distribution of government funds.

Despite the threat of inflation practically no forward buying is reported, purchases of steel by even the big consumers being in relatively small quantities. Of late the railroads have bought very little, and that principally with funds advanced by the government, and during the remainder of the year there is little hope of any substantial buying by the carriers. Private construction work, involving in the aggregate any substantial tonnage of steel, is almost negligible. Purchases of steel products have not been accelerated by the much heralded home modernization campaign.

Public Works Jobs Boost Demand for Steel

Large public works projects provide the most active single feature in steel demand. Producers in the South and other districts have an opportunity to share in the business. An encouraging feature of buying of this character is that some of the jobs are so large that it will take from two to three years to complete them, so that purchases of steel products will be made at irregular intervals as the particular items are required.

Road and bridge building is going forward in increased volume, now that the States have obtained recently allocated Federal funds. This is stimulating the demand for reinforcing steel and bars

and for structural steel and miscellaneous items.

Sewer and Water Projects Spur Iron and Steel Buying

Numerous sewer, water and drainage jobs have been placed under contract lately. PWA funds having been made available after months of negotiation. This promises to stimulate buying of iron and steel products in a variety of lines, for such projects will necessitate the use of iron and steel pipe, valves, fittings and special casting; reinforcing and structural steel; finished items of iron and steel, such as pumps, engines, and other machinery. Meanwhile, scores of applications are pending for PWA loans for projects of the character. Of late there has been a noticeable increase in the demand for heavier products to be used in government-financed projects.

Some Favorable Factors Noted

Tinplate production has been a factor in increased ingot output. Demand for tinplate for domestic use in the packing of meat, coupled with export buying, have been sustaining influences, enabling producers to run at 45 to 50 per cent.

A better market tone was noted in the principal scrap centers as the third quarter drew to a close. Although there was no perceptible increase in demand from major steel companies, dealers have been making sales and prices have been firm. Naturally any improvement in the scrap situation is viewed as a good indication for the finished steel industry.

Brighter Outlook in Birmingham District

In the Birmingham district an improved tone in industrial circles is noted. Although industrialists are encouraged at the outlook, it is the consensus of opinion it is vain to anticipate any substantial increase in buying until there is a greater return of confidence on the part of manufacturers generally.

The Kilby Car & Foundry Co., Anniston, last month began work on the installation of an electric furnace, estimated to represent an investment of \$100,000, to employ a special process used at only two other points on the continent.

At the close of the third quarter the Tennessee Coal, Iron & Railroad Company resumed operations at its Ensley rail mill, the immediate business in hand being 130-pound rail for the Southern

Railway System. The rails are to be laid between Chattanooga and Cincinnati.

Foundries and machine shops in the Birmingham district are encouraged by the substantial volume of business in the aggregate in prospect as a result of the award of contracts recently for water works and sewer system extensions in the South and Southwest, as well as in the West, to which water shipments may be made advantageously from district plants.

Local industrialists look for improved buying by agriculturists by reason of the higher prices obtained for cotton, tobacco and other products. It is anticipated that farmers will use considerable steel, nails, wire, sheets, etc., in addition to purchasing new farm implements, tractors, motor trucks and private cars.

Makers Strive to Maintain Prices in Profit Zone

Apparently steel makers will vigorously contest efforts toward lower prices, particularly in the face of the higher wage rates in force and the comparatively low operating schedules. It is pointed out that while prices now are generally \$1 to \$4 a ton higher than prevailed during the second quarter, that on the basis of higher wages prices are by no means out of line. For instance, one company reports that wages this year have been 15 per cent above those paid in 1929, yet the company has sold its products at about 30 per cent less than in the boom period.

Only a few of the larger steel producers are able to make profit at the prevailing rate of operation it is pointed out. Since this season is usually the second most active of the year, and the rise in operation for three consecutive weeks indicates that the fall season is moving true to form, the unwisdom of price cutting is at once apparent say producers. Moreover, indications are that stocks of steel in the hands of consumers are comparatively low and that replenishment buying should begin shortly.

Exports of iron and steel gained during August, reaching 242,000 tons the second highest month this year. Exports in August, 1933, were 119,000 tons. Imports during August were 32,418 tons, also the second highest of the year, but were 30 per cent under August 1933 imports.

Rust-Resistance and Low Cost Led to Choice of Beth-Cu-Loy

Who is a better judge of sheets than the sheet-metal contractor, who is working with them every day? They are his brick and mortar. Good sheets are essential to him. But better sheets are so much the greater advantage.

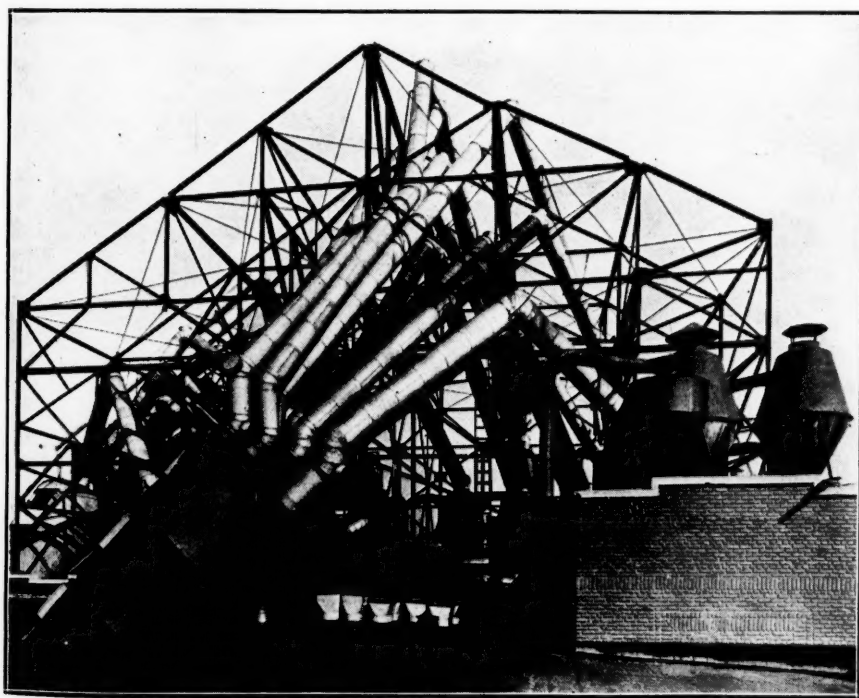
It was because of Beth-Cu-Loy's high rust-resistance, combined with low cost, that Charles T. Brandt, Inc., Baltimore, sheet-metal contractors, selected Beth-Cu-Loy Sheets when the Crown Cork and Seal Company awarded them the contract for erecting the unusual dust-collecting system shown below.

Here is the way Mr. Charles E. Brandt, who was directly in charge of this job, put it: "We used Beth-Cu-Loy Sheets because they're made of copper-bearing steel. The ducts are exposed to the weather; and where moisture conditions exist this material affords maximum rust-resistance at low cost.

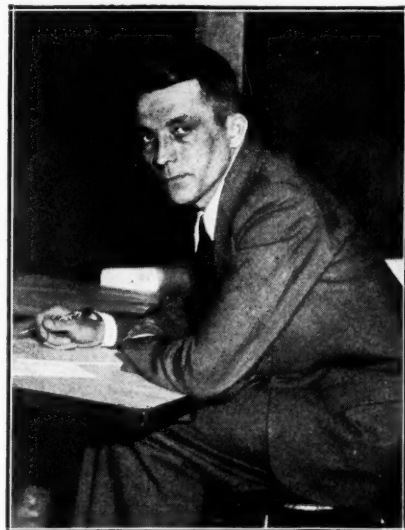
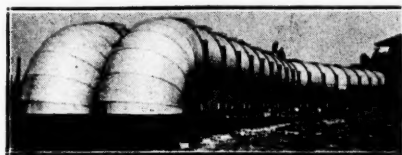
"In addition, we gave preference to Beth-Cu-Loy Sheets because of their good working qualities. They bend without cracking and the galvanizing stays on."

Copper-Bearing Steel ranks First in Rust-Resistance

Beth-Cu-Loy Sheets are noted for their uniformity in work-



This extensive dust-collecting system at the Crown Cork and Seal Company's Baltimore plant contains several hundred feet of duct work, and is constructed throughout of Beth-Cu-Loy Sheets. The smaller ducts coming from the roof of the factory lead into a settling pipe (at right), 11 ft. in diameter and made of 16-gauge Beth-Cu-Loy.



Charles E. Brandt

ing quality—an important factor in fabricating costs. And they are made of copper-bearing steel, the material which ranked first among the whole range of commercial grades of steels and irons in atmospheric-exposure tests made by the American Society for Testing Materials.

Copper-bearing steel outlasts ordinary steel in rust-exposed applications by from 2 to 2½ times. Yet Beth-Cu-Loy Sheets, made from this durable material, cost only slightly more than sheets of ordinary steel. The difference is so slight that it scarcely affects the cost of materials for a given job.

BETHLEHEM STEEL COMPANY GENERAL OFFICES: BETHLEHEM, PA.

District Offices: Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Milwaukee, New York, Philadelphia, Pittsburgh, St. Louis, St. Paul, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Seattle, Los Angeles, Portland and Honolulu. *Export Distributor:* Bethlehem Steel Export Corporation, New York.



EQUIPMENT

NEW AND IMPROVED

Streamlined International Trucks

The International Harvester Company of America, Chicago, announces a new streamlined International truck in models ranging from one-half ton to 5 tons capacity. As a forerunner of this new line, the company sometime ago announced the half-ton model C-1 which has met with wide approval. The larger models now being shipped carry the same distinctive lines and attractive finish. New models include the C-20, 1-1½



International Model C-55 Truck Built to Carry 14,000 Pounds When Loaded.

ton rated capacity, which has a maximum allowable gross weight of 8,300 pounds; model C-40, rated 2-3 tons, with maximum allowable gross weight of 13,000 pounds; model C-50, rated capacity 3-4 tons, maximum allowable gross weight of 16,100 pounds; model C-55, built to carry a total of 14,000 pounds, including body, cab and equipment, 3½-4½ tons rated capacity, having maximum allowable gross weight of 21,500 pounds, and model C-60, 4-5 tons rated capacity and having the same maximum allowable gross weight. All these models are of the same streamlined design, which is carried out in cabs and in panel bodies, and suitable body types are available to meet all hauling requirements.

New Electric Stud Welder

A new portable stud welder, consisting of a welding transformer and control mounted in a portable steel cabinet, primary and secondary cable, and a stud-welding gun, has been made available by the General Electric Company. The stud welder is an equipment for fusing the end of a stud into a metal surface—applications include welding studs to steel surfaces for hanging piping, con-

duits, signs, instruments, hooks, and insulating materials.

A stud is placed in the welding gun, pressed against the surface to which it is to be welded, and one automatically timed impulse of power completes the weld.

One side of the portable steel cabinet is equipped with split steel doors which give access to the control panel for adjustment of current and for servicing. Once adjusted, the timer repeats the desired deviation of current flow for each weld.

The transformer is mounted in the cabinet behind the control panel and is connected to the power supply through a 20-foot double-conductor drag cable. The weight of the complete unit, less the cables, is approximately 500 pounds.

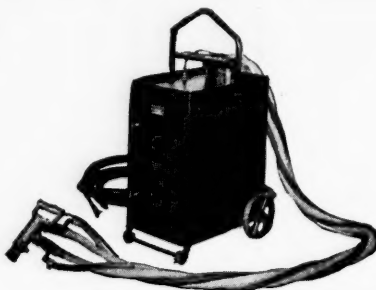
The welding gun is a tool for holding the stud against the work under spring pressure, and for properly directing the welding current. The gun is light in weight—most parts being of aluminum

—and will accommodate studs of from ⅛ to ⅝ of an inch in diameter and from ½ to 2½ inches long.

The new G-E stud welder is obtainable for single-phase power supplies of from 25 to 60 cycles—110 to 550 volts.

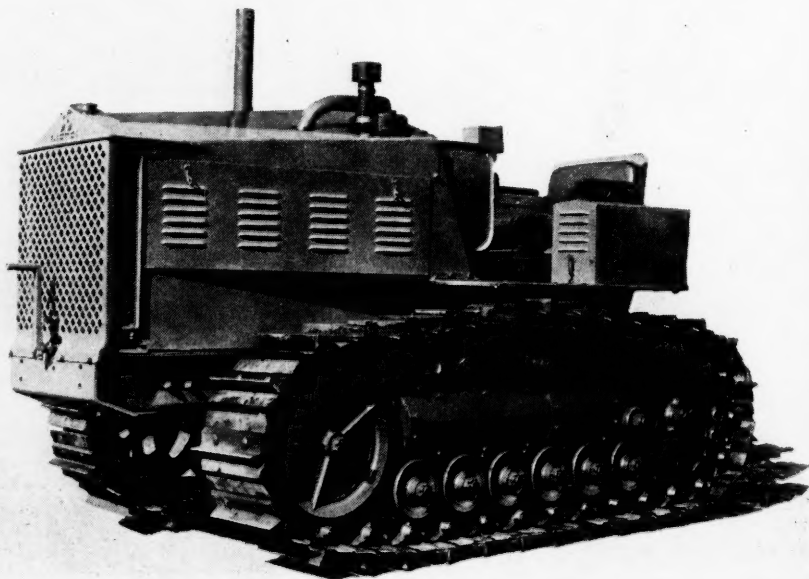
New Diesel Tractor

The Cleveland Tractor Company, of Cleveland, Ohio, announces the Cletrac 35 Diesel Tractor, which delivers a maximum of 46 horsepower at the drawbar. This new unit embodies features of the Cletrac 35 gasoline tractor which has been tested by years of service in both agricultural and industrial work. The engine is of the same general construction as the engine in the Cletrac Diesel 80, the latter having been in operation thousands of hours and working under all conditions. Of six cylinder design, the Cletrac Diesel 35 engine has a 4⅝-inch bore by a 5¼-inch stroke and operates at 1200 r.p.m. It has seven main bearings and the crankshaft is balanced with integral weights, resulting in a well-balanced, smoothly operating engine. Removable liners are provided in the cylinder block. An outstanding feature of the Cletrac 35 Diesel is electric starting, a convenient and economical feature which has proven highly successful on the Cletrac Diesel 80. Standard equipment also includes radiator guard, crankcase guard and wiring for lights.



General Electric Portable Transformer and Gun for Stud-Welding.

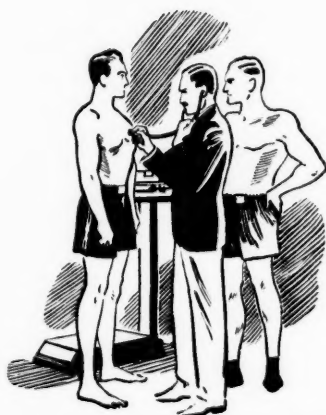
Cletrac 35 Diesel Tractor



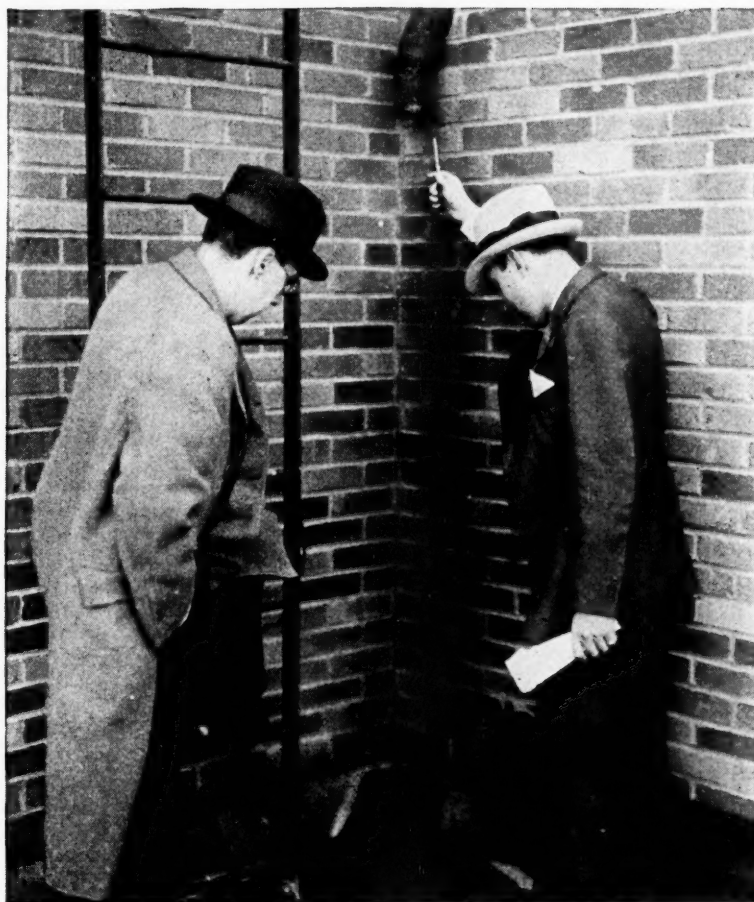
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OCTOBER NINETEEN THIRTY-FOUR

45

A Progressive Bank

Every progressive business studies the advantage of its customers. A properly conducted bank is no exception.

Can we be of Service?

Baltimore Commercial Bank

GWYNN CROWTHER, President

Baltimore, Maryland

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FINANCIAL NEWS

A Central Bank

Discussions at Washington concerning a central bank have gone further than most people realize. While it is true in a great many countries central banks have been the rule, they are not of a kind it is believed that would meet with favor in the United States.

The objection most frequently heard to the thought that America is ready for an institution of this kind, is the fear that in its operation under government control as an agency for nationalizing credit, it would be not only directly competitive with individual privately owned banks, but in many ways subversive of the country's best interests.

The point often made in reference to the independence of action of the Federal Reserve Bank is its freedom from political domination. Hope, therefore, is expressed that the idea of a central bank will be abandoned, because under political control it will be another government operated enterprise with all that that implies. People are not yet ready to put the Government in control of the credit resources of the country.

As the Guaranty Trust Company points out in its monthly survey, "the program of public loans and expenditures involves borrowing on a huge scale by the Government, mainly from the banks. About one-third of the bank portfolios consists of Government bonds and member banks of the Federal Reserve System alone hold more than one-third of the total public debt." It adds, "with the central bank completely under the control of the Government, the borrowing above mentioned could be greatly extended, and if the central bank should be relieved of reserve requirements, there would be no limit at all."

Desirable Loans Wanted

Millard F. Jones, President of the North Carolina Bankers' Association, referring to the banking situation in his State, says that the banks of North Carolina are playing a vital and constructive part in business recovery. There are more than \$100,000,000 loans extended to thousands of business concerns and individuals and he remarks "the banking system is in excellent condition and there is an abundance of additional available bank credit which our bankers are ready and anxious to use in the support of sound business expansion."

Similar statements as to lending capacity and the need for finding good loans come from banks in other sections. Funds are abundant, but unfortunately they are not in active demand for promoting business. Borrowers are unwilling to take the risk of new ventures until they find the outlook more assured.

Leading industrialists insist that in no previous depression within memory has there been such fear expressed about the outcome for business generally. In this time of experiments the opinion is it would be well to return to some of the fundamental policies which have meant progress in the past.

Loans to Industry

Through Presidential and Administrative urging, loans to industry increased nearly 100 per cent during the first half of September. It is reported that already loans in three weeks amounted to almost as much as those in the preceding three months. The effort will be kept up, it is understood, both by the FRC and by the Federal Reserve Banks.

(Continued on page 48)

Draining the Lifeblood of a Great Industry



PROMINENTLY DISPLAYED on a wall in the ELECTRICAL BUILDING at the CENTURY OF PROGRESS in Chicago is the following statement:

EDISON and other men of genius made electric service possible. Men of vision and enterprise developed the electrical supply industry until it serves us at lower cost than slaves could do the work. *CONFISCATORY regulation, excessive taxation, and unfair competition, which threaten the unrestricted use of this service, would be disastrous to the investments of the multitude whose hard-earned substance is the lifeblood of the industry.*

SUCH threats to the savings of utility investors demonstrate the wisdom of the Associated Gas and Electric Company's Plan of Rearrangement of Debt Capitalization for the protection of the interests of Associated security holders.

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A.B. FARQUHAR CO., Limited, Box 6M, York, Pa.

SAWMILLS

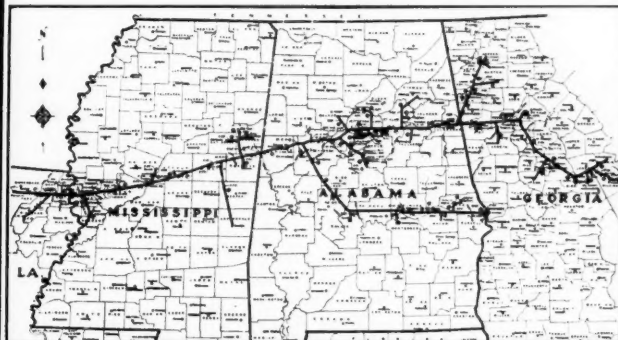
OCTOBER NINETEEN THIRTY-FOUR

Why not have your fuel delivered to the actual point of use in pipes?

NATURAL GAS

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An ideal fuel for any type of manufacturing plant.



Southern Natural Gas Corporation

Watts Building
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GROUP LIFE INSURANCE

soon learn to class it as an
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*Let us show a plan
for you and yours*



**THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA**

EDWARD D. DUFFIELD, President
HOME OFFICE, NEWARK, N. J.

Financial News

(Continued from page 46)

Individual Investments

As pointed out by Frazier, Jelke & Co., while the last five years have meant many economic readjustments in individual affairs, the average man still holds substantial property investments. Of 93,249,000 life insurance policies in force with 44 principal companies, the average face value is approximately \$1100, and it is estimated that about 65,000,000 persons carry insurance, behind which there are admitted assets of \$18,227,000,000. "Each of the 13,000,000 savings bank depositors has an average of about \$700 with total deposits amounting to \$9,720,000,000."

Foreign Investments

George N. Peek, in a report to the President on International Credits for Foreign Trade, states that foreign investments in this country in 1914 amounted to \$4,500,000,000, and at the end of 1933 they amounted to \$4,557,000,000, almost identical with the amount before the war.

On the other hand, United States investments abroad had increased by \$23,702,000,000. Of the wealth which thus went out of the United States to be invested in other countries, only \$10,304,000,000 is attributable to United States Government war loans.

The Vicious Circle

Referring to the scarcity of good bank loans, a correspondent says inasmuch as RFC and FRB as was authorized and expected to make business loans, and inasmuch as the Government has been investigating reasons why the banks and the RFC and FRB either will not or have not made loans "we must conclude that the collateral demands cannot be met by industry. This means that, measured by the yardstick of these organizations, small industry, which is the bulk of the nation's industry, is bankrupt in spite of the same wealth in plants and land and resources." From this he argues that "if the bulk of the nation is bankrupt, measured by present banking standards, why fool ourselves as to recovery. If, on the other hand, industry is not bankrupt and it is merely the wrong standards of the RFC and FRB and the banks, growing out of fear, how can recovery, which is dependent upon loans not now obtainable, come about without some kind of inflation?"

His letter continues "we all know banks will not make new loans until old loans are paid. If loans are dependent on collateral which does not exist in the hands of small industry, and would be sold to gain relief if it did, there will be no loans and therefore no recovery in the immediate future. Government spending, now 40 per cent of national income, must end some time. Then what? Recovery without credit is impossible and our national problem is now to supply the necessary credit for recovery."

Mr. Nichols of Chicago

The correspondence which Mr. J. M. Nichols, President of the First National Bank of Englewood, a suburb of Chicago, Ill., has addressed to the Federal Deposit Insurance Corporation, has attracted nation-wide attention.

Some time ago Mr. Nichols, who is known in Chicago as "100 per cent Nichols," attracted attention because of his unusual policy of asking depositors to withdraw their deposits, at the same time promising to give them a present if they did so. He denies that he is a member of the FDIC, but even if the law, without his consent, includes his bank which has its deposits insured up to \$5000, he refuses to buy the signs that tell the public the insurance fund is backing up their accounts.

MANUFACTURERS RECORD FOR

Injunction Sought Against Knoxville-TVA Contract

Calling the program of the TVA "a violation of the Federal Constitutions," an injunction has been sought by stockholders against the sale of properties of the Tennessee Public Service Company, Knoxville, to the TVA and the building of a municipal system with PWA funds.

United States District Judge, George Taylor, before whom the plea was filed at Greenville, Tenn., asked to be excused from jurisdiction on the ground that a member of his family had a financial interest in the utility company.

The bill of complaint charged that the contract with the Tennessee Valley Authority July 17, for the sale of the electric system and properties of the utility in Knoxville and East Tennessee, was "forced by duress of the TVA." The bill further charged that the TVA was without authority to acquire and operate a utility system or fix rates for local utility system. The City of Knoxville obtained a \$2,600,000 PWA loan-grant with which to build a municipal distributing system but dropped plans when the TVA opened negotiations to buy the existing utility system.

The bill of complaint is similar to the petition filed against the TVA in Alabama by 46 Alabama ice and coal companies and corporations.

To the Holders of Bonds of

City of Pensacola, Florida

The City of Pensacola is requesting holders of the following described bonds, aggregating \$1,885,000 to accept new refunding Bonds in exchange:

DATE OF BONDS	TITLE	INTEREST RATE	MATURITY	AMOUNT
Jan. 1, 1906	IMPROVEMENT Nos. 101 to 750, Incl.	4½%	Jan. 1, 1936	\$650,000
Jan. 1, 1911	IMPROVEMENT Nos. 1 to 250, Incl.	4½%	Jan. 1, 1941	250,000
Jan. 1, 1920	DOCK & BELT R. R. Nos. 1 to 400, Incl.	4½%	Jan. 1, 1950	400,000
Oct. 1, 1911	REFUNDING Nos. 1 to 250, Incl.	4½%	Oct. 1, 1941	250,000
Oct. 1, 1918	IMPROVEMENT Nos. 1 to 210, Incl.	5%	Oct. 1, 1948	210,000
Oct. 1, 1921	IMPROVEMENT Nos. 1 to 125, Incl.	6%	Oct. 1, 1951	125,000

It is proposed to issue Refunding Bonds, dated July 1, 1934, in denominations of \$1,000 and bearing the same rate of interest as the bonds to be refunded with serial maturities ranging from 1935 to 1964. The exchange for new maturities given priority in order of present maturities.

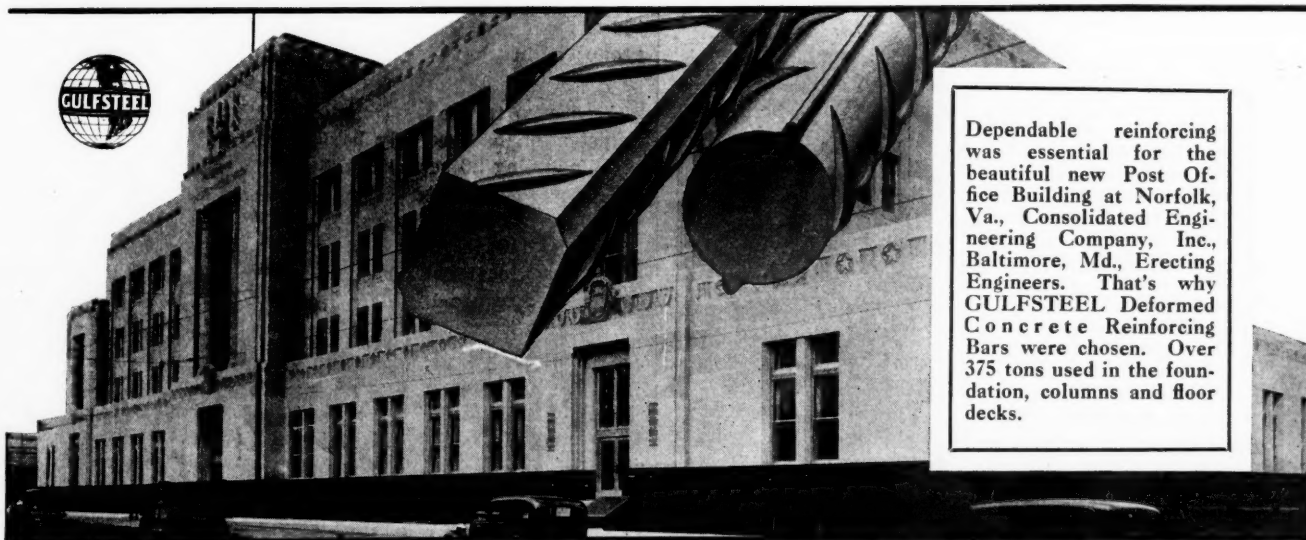
The Chemical Bank & Trust Company of New York City has been designated as Depositary, under the plan. The plan contemplates the execution of the entire exchange without expense to the bondholders.

All holders are therefore respectfully requested to lend their complete co-operation by depositing their bonds with the Chemical Bank & Trust Company in order that the plan may be consummated before the adoption of the Homestead Exemption Law, which will not apply to bonds issued prior to the adoption of this proposed constitutional amendment for homestead exemption.

Copies of the complete plan and letter of transmittal may be obtained from the Chemical Bank & Trust Company or from the undersigned.

GEORGE J. ROARK, City Manager.

FOR NORFOLK'S NEW POST OFFICE



Dependable reinforcing was essential for the beautiful new Post Office Building at Norfolk, Va., Consolidated Engineering Company, Inc., Baltimore, Md., Erecting Engineers. That's why GULFSTEEL Deformed Concrete Reinforcing Bars were chosen. Over 375 tons used in the foundation, columns and floor decks.

GULFSTEEL REINFORCING BARS

GULF STATES STEEL COMPANY BIRMINGHAM, ALABAMA

OCTOBER NINETEEN THIRTY-FOUR



PROTECT THEM with knowledge gained from the past



Relatively low cost durable materials are desirable for present emergency work to give the coming generation service from the work they must finish

Why AMCRECO PRODUCTS have long life and low annual cost

1. Carefully selected timber.
2. Incipient decay avoided.
3. Framing before treatment.
4. Preservative of known value.
5. Adequate treatment.
6. Treatment accurately timed to proper seasoning.
7. Unequalled facilities and personnel of the leading producer.

paying for. While preservatively treated timber ideally fits this specification for many construction projects, it will do so only if properly treated with proven standard preservatives. We should use only preservatives of known value in such work and not leave merely a heritage of experimentation.



will still be good when today's boys finish paying for them

AMERICAN CREOSOTING COMPANY

COLONIAL
CREOSOTING
COMPANY
INCORPORATED



GEORGIA
CREOSOTING
COMPANY
INCORPORATED

LOUISVILLE — KENTUCKY

OVER THE EDITOR'S DESK

THE PRESIDENT HAS SPOKEN. He seeks a means of ending industrial warfare and announced that this month he proposes to confer "with small groups of representatives of large employers of labor and of large groups of organized labor." His purpose is to seek assurance of the making and maintenance of agreements which can be mutually relied upon. He will ask a fair trial of peaceful methods of adjusting conflicts of opinion and interest and to experiment "for a reasonable time" with measures suitable "to civilize our industrial civilization." Without discounting in the least the evident good purpose expressed in this, it will be interesting to learn from what source the representatives of "large groups of organized labor" will be invited. Will it include representatives of company unions from different plants, or does it mean the national representatives only of the American Federation of Labor?

THERE IS A DECIDED INCREASE in sentiment in favor of reviving business by lowering prices. It used to be the way of disposing of an over-supply of goods and it never has been denied that our misfortunes came about largely from over-production. When people have the means they will buy on a rising market, but when they are buying only bare necessities, they are not tempted except by reductions.

Of course, the difficulty for the manufacturer has been to reduce the price of a product which cost him more to produce under codes than it did in the past.

We are going to hear more in the near future from industry about the desirability of freer competition. It is recognized that cut-throat practices can be ruinous, but perhaps there is a ground from which progress can start without fear of monopolistic control.

THE COMMERCE DEPARTMENT announces that our British cousins in their industrial activity have shown substantial improvement in the first half of the current year. British Board of Trade figures show such increases as 44.8 per cent in iron and steel during the first quarter. The general index from April to June shows the highest figures for all groups of industry combined since the first part of 1930.

ACCORDING to the Associated Press the Public Works Administration has recently held up 25 Virginia building projects, including 20 school buildings, because local labor doing skilled work was paid 80 cents an hour in cities and 60 cents an hour in rural counties. The PWA minimum for skilled labor is \$1.10 per hour and the PWA Board of Review decided that local skilled laborers, because they were doing work that required skill should be paid according to the rates established by the PWA. Accordingly payments have been held up until the wage adjustments have been made.

Contractors all over the country have found it difficult to get orders for private work so long as figures for wages have been set by government, which appear too high to justify property improvements. Investors claim they cannot get the rents to warrant such high cost investments.

FURTHER NEWS is waited regarding the suit by Alabama Coal Operators and Ice Manufacturers in the U. S. District Court, in which the TVA and Alabama Power Co. have been named as defendants. In the meantime fourteen preferred stockholders of the Alabama Power Co. have asked an injunction to prevent carrying out the contract entered into between the power company and the TVA. The announced

purpose of this is "to restrain 14 North Alabama municipalities from furthering allegedly unlawful use of federal funds and functions by the TVA."

The constitutionality of the act under which the Authority was created is attacked in a charge that it was a move for public ownership of utilities.

RAILWAY FREIGHT has been increasing at an encouraging rate in the last few months. We are printing in this number Mr. Daniel Willard's answers to important questions as to what the future may hold for our railroads. While all authorities do not agree by any means that light weight units can be successfully used to handle the movement of heavy commodities, it is admitted that the experiments in fast moving, light-weight passenger units, present a very interesting prospect. The cost of such operation is not only small in comparison with ordinary passenger train cost, but mechanical devices have been introduced that are said to give the acme in comfort to the traveler.

Diesel engines have proved their worth in many lines of power production. Their economy and reliability are too well recognized to need special comment. Their adaptability, however, to moving train units opens up possibilities for future developments and hold a bright promise for industry.

Various railroads besides the Burlington and the Union Pacific are ordering these light-weight, fast flying passenger trains to compete with other modes of traveling, and enable them to give transportation at low cost. It would seem to be possible for package freight certainly and a great proportion of other freight to be moved in a similar way.

THE ELECTRIC HOME AND FARM AUTHORITY, which is the government enterprise to spread the sale of electrical appliances in homes, uses what it terms a "traveling kitchen." It visits small towns, hamlets and county seats to give demonstrations of what modern science has done for the comfort and convenience of the housewife through the use of electric current. Through the cooperation of manufacturers the supplies shown are priced at figures below what they have heretofore cost and it is understood that sales are conducted on the installment program entirely through the retailers. Ranges, water heaters, kitchen cabinets, electric kettles and electric mixers are shown with abundant outlets built into the traveling kitchen's walls which, as the Electric Home and Farm Authority says in its announcement, to show those in villages and on farms and out-of-the-way places new ways of convenience in home life.

THE LIBERTY LEAGUE after its initial announcement has been sparing in the giving out of news about its plans. As an organization soliciting membership from men of all political faiths with the simple proviso that they lend their assistance to the support of the Constitution, there is no doubt this has made a strong appeal. A fuller explanation of its purposes and plan of operation is being looked for with interest. It is not expected that it will take part in politics, because it does not represent any political party. It is expected that it will follow the Constitution, stress the necessity for due regard being given to property rights, and it is hoped that its campaign, whatever it may be, will lend itself promptly to the effort to have government expenditures reduced and government competition with private business abandoned. Their continuance, added to an unbalanced budget and fear of inflation, makes impossible a proper sense of values and hampers initiative.

THE PWA has refused to grant further loans to municipal units in competition with private enterprise according to press reports. If this is correct, it will encourage not only the operators of private utilities, but investors as to the worth of their securities.

Unfenced next door



But CYCLONE FENCE KEEPS OUR PLANT SAFE

"Originally we put that fence up to stop petty thieving by having complete control of exits and entrances.

"Then we found it allowed us to put one of our night watchmen on a new job as warehouse man. The fence allowed us to keep our weather-proof stock in the yard thus providing added storage space.

"Next we noted we had no more loafers or unwanted visitors, thus avoiding possibility of injuries and consequent liability.

"Then came that riot in the next plant—but we needn't go into that.

"Our fence has been up several years now and apparently will be up for many more. That means the cost per year is and will be very small. It paid us to check over the claims, reputation and prices of Cyclone Fence Company before we had this fine job installed by a trained Cyclone crew and with no worry to ourselves."

A Cyclone Chain Link Fence, in spite of its low cost, provides a permanent safe-guard, with virtually no upkeep expense. You may become familiar with its many advantages without obligation. Today, write for complete information. Address Dept. M. R.

CYCLONE FENCE COMPANY

General Offices: Waukegan, Ill.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Branches in Principal Cities

Pacific Coast Division:

Standard Fence Company, Oakland, Calif.

Cyclone—not a "type" of fence—but fence made exclusively by Cyclone Fence Company and identified by this trademark.

Cyclone Fence

REG. U.S. PAT. OFF.



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Presents
"MILLERIZING"



*A Scientific Process That Means Longer
Life in the Roof.*

Every manufacturer wants the assurance of long life in the roof. The way to get this assurance is to insist upon Certain-teed "Millerized" Roll Roofings, Shingles and Roofing Felts.

This is a scientific, patented process which saturates every fibre of the roofing felt with asphalt more thoroughly and uniformly than any other process. Our nearest Sales Office will be glad to demonstrate this process or send you complete literature on the subject.

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GENERAL OFFICES—NEW YORK, N. Y.



*Crescent Spinning Mills Belmont, N. C.
select 130,000 square feet of RU-BER-
OID "Lock-Down" Hex Strip Shingles to
Protect the Homes of Their Employees.*

THESE COMPANY HOUSES RU-BER-OID ROOFED

WHEREVER industry penetrates, the known dependability of a RU-BER-OID Roof reflects itself in the ever-widening use of all RU-BER-OID Building and Weatherproofing Products. There are built-up roofs for industrial buildings, asbestos-cement or asphalt shingles and sidings for schools, churches and employes' homes—Newtile for bathroom or kitchen, cement waterproofing, industrial paints, pipe coverings, etc. Samples and literature upon request. Address nearest office.

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ROOFING MANUFACTURERS FOR OVER FORTY YEARS

RUBEROID—CONTINENTAL—SAFEPAK

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Offices and Factories: New York, N. Y.—Chicago, Ill.
Millis, Mass.—Eric, Pa.—Baltimore, Md.—Mobile, Ala.

ARE YOU AWARE THAT

WHILE THE WORLD USED MORE COTTON last season, it used less American cotton. The world's cotton mill consumption for the year ending July 31, 1934, reported by the International Cotton Federation, was 25,094,000 bales as compared with 24,352,000 bales consumed in the previous season. World consumption of American cotton was given at 13,539,000 bales, or 53.9 per cent of the world's total, as compared with 14,170,000 bales, or 58.1 per cent, for the cotton year ending July 31, 1933. Estimated total world cotton mill stocks July 31, 1934, were 5,331,000 bales, a gain of 281,000 bales over the same date last year. American cotton held by the mills of the world numbered 2,319,000 bales as compared with 2,558,000 bales July 31, 1933.

MORE THAN HALF OF THE KRAFT PAPER made in the United States is produced from Southern pine woodpulp by Southern mills. New uses for pine pulp, in addition to making newsprint and white paper, include basic products and by-products for the manufacture of cellulose for rayon, shoe lining, new skin, artificial leather, smokeless powder, gun cotton, etc.

ENORMOUS SALT DEPOSITS are to be found in the South. The Gulf Coast of Texas and Louisiana produced about 75,000,000 barrels of oil last year from fields which owe their existence to salt, and a large proportion of the world's supply of sulphur is derived from a few of the Gulf Coast salt domes.

THE AAA will distribute \$72,000,000 to cotton farmers in October. Cotton growers have received rental checks from the Government totalling more than \$35,000,000 and are to receive in addition between \$25,000,000 and \$30,000,000 due next December in parity payments. Possibly 4,000,000 of the 6,250,000 farmers in the country are sharing in the benefits of the AAA through contracts, licenses, agreements, and other arrangements.

LOSS IN WAGES due to strikes this year amounts to more than \$50,000,000 in 15 industrial groups and does not represent the total loss sustained by all striking workers and reduced employment in allied industries.

CONSUMERS are paying from two to four taxes on gasoline they purchase. The sales tax now averages about 40 per cent on gasoline, in some States, 100 per cent on the wholesale price. Motorists pay more than 10 per cent of the total cost of Federal, State and local government.

CELLULOSE ACETATE, of which the South furnishes a large proportion of the country's output, is being produced and sold at double the rate of the boom period. The 1933 production was double that of 1932 and the trend continues upward. Chief cellulose acetate products are rayon, sheets for safety glass, photograph film, transparent wrapping material, and plastics. As Arthur D. Little, Inc., chemists, point out, the industry provides a prime example of what technical and market development can do with a promising material under adverse business conditions.

GROSS FARM INCOME from 78 crops and 13 livestock products amounted to \$5,971,259,000 last year, \$2,259,443,000, or 37 per cent, being received by Southern farmers. Of the country's total farm cash income of \$5,252,870,000, including \$271,024,000 in acreage reduction, benefits and AAA slaughter payments, the South received \$1,901,912,000, or 36 per cent.

MANUFACTURERS RECORD FOR

FARM PRICES of principal agricultural products increased during the past four months by more than 50 per cent. The price of cotton increased 20 per cent; corn, 66 per cent; wheat, 40 per cent; oats, 64 per cent; rye, 58 per cent; barley, 38 per cent, and hogs 90 per cent.

THE AVERAGE WORK WEEK during the past year has been reduced about six hours, to 37 hours a week for all industry. The average pay for industrial labor is about 55 cents an hour. Labor's share of the national income rose from 58.3 to 62.5 per cent. With nearly 10 per cent increase in living costs, there is a net increase of 25 per cent in purchasing power.

EMPLOYMENT in the United States reached 40,180,000 persons in June, 1934, states the National Recovery Administration. This was a gain of 4,120,000 over the low point in March, 1933, and 2,320,000 over June, 1933. Total weekly wages in manufacturing increased from \$96,000,000 in June, 1933, to \$132,000,000 in June, 1934, or 37.5 per cent. The estimated increase in labor's share of the national income was from 58.3 per cent in June, 1933, to 62.5 per cent in June, 1934; and the increase in the wholesale price index was from 60.2 per cent in March, 1933, to 74.6 in June of this year.

STEEL INGOT PRODUCTION for eight months ending August 31 is estimated at 19,016,832 tons, an increase of 4,110,521 tons or 27.6 per cent compared with the corresponding period of 1933.

VOLUME OF NEW LIFE INSURANCE written this year shows a gain of approximately 13 per cent over last year.

MORE FACTORIES are being built in England, the estimated total cost increasing over 66 per cent in the first six months of 1934 compared with the corresponding period of 1933. The gain was more than 100 per cent during the month of June. Industrial expansion in the United States is lagging, with the NRA prohibiting the construction of additional plant capacity in some lines.

BUILDING is advancing at such a pace throughout the British Isles that the building trades and the industries directly affected are looking forward to a year of record prosperity.

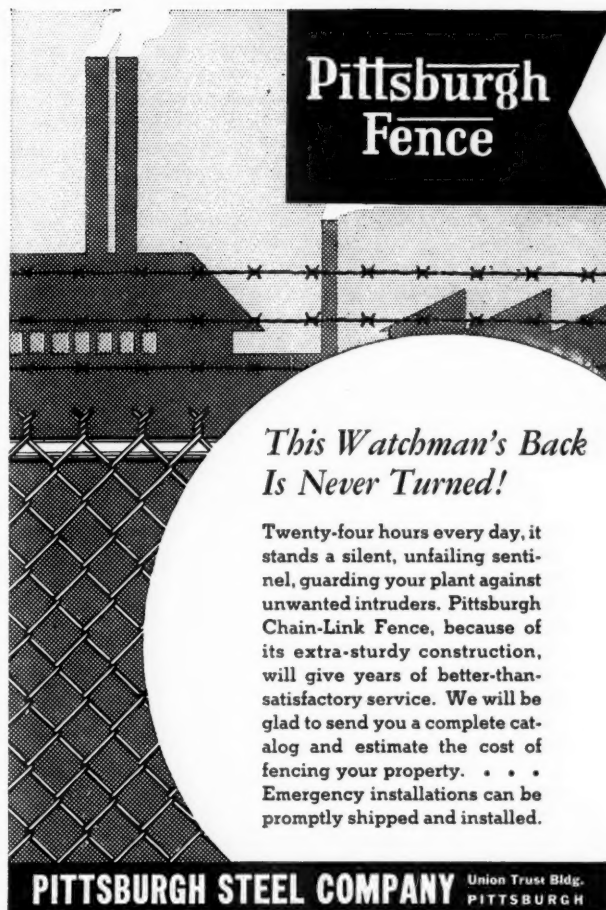
POPULATION of the South is now in excess of 42,000,000. Only nine out of more than 300 countries in the world have more inhabitants. The South has more people than in any country in Europe, excepting Germany and Russia; more people than in any country in Central and South America, and four times the population of Canada.

THE SOUTH has 223 cities each with 10,000 inhabitants or more.

IODINE, a product which until recent years the United States obtained almost entirely from foreign countries, is now produced in appreciable volume from domestic sources. Its principal industrial uses include water treatment, as an admixture with salt and as an ingredient in the manufacture of soaps and dyes, and other chemicals.

RADIO FOR TRACTOR CONTROL, and microphone control of office elevator operation are among the new developments. The International Harvester Company is demonstrating a Farmall tractor by remote radio control, opening engaging possibilities for the cultivation of broad acreages of farm lands. Office building elevator starters through microphones connected to each elevator have direct supervision of service, floor by floor.

OCTOBER NINETEEN THIRTY-FOUR

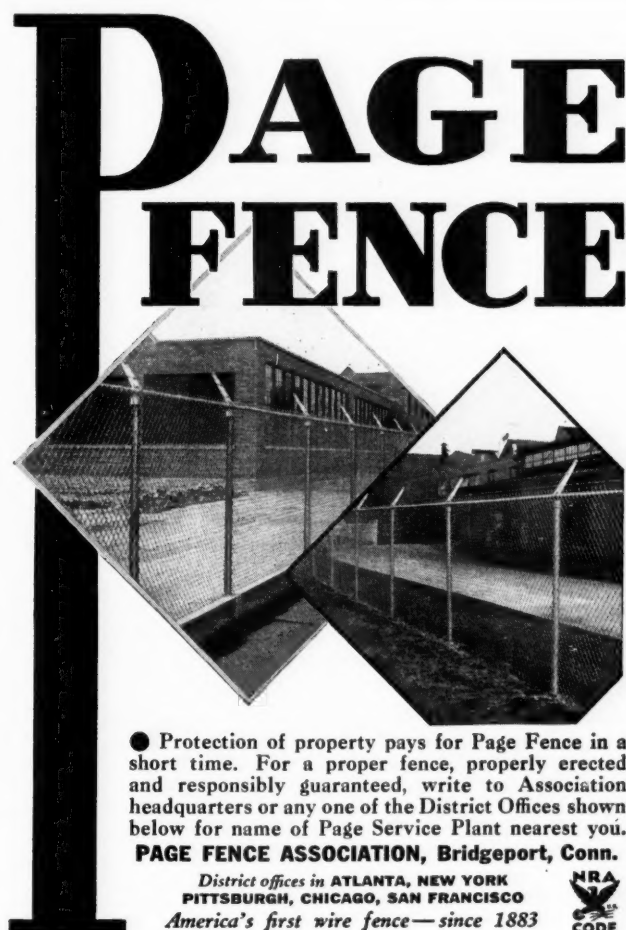


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This Watchman's Back Is Never Turned!

Twenty-four hours every day, it stands a silent, unfailing sentinel, guarding your plant against unwanted intruders. Pittsburgh Chain-Link Fence, because of its extra-sturdy construction, will give years of better-than-satisfactory service. We will be glad to send you a complete catalog and estimate the cost of fencing your property. . . . Emergency installations can be promptly shipped and installed.

PITTSBURGH STEEL COMPANY Union Trust Bldg. PITTSBURGH



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District offices in ATLANTA, NEW YORK
PITTSBURGH, CHICAGO, SAN FRANCISCO
America's first wire fence—since 1883

NRA
CODE

« « LETTERS FROM READERS » »

Assurance By Action

AMERICAN CYANAMID COMPANY
New York

EDITOR MANUFACTURERS RECORD:

In your September cover page editorial under the title, "To Revive Confidence," there is presented a number of statements which might be made by the President and which it is though would go a long way to re-establish that degree of confidence so essential to recovery.

Undoubtedly, such statements would be helpful. We, however, had similar assurances in the Democratic Platform of 1932, which were restated even in more emphatic language by Mr. Roosevelt, then the Presidential candidate. The fact that performance has not conformed to these statements is perhaps the most important single factor in impairment or destruction of confidence. What we now need is assurance by action, rather than by statement.

Without attempting to list all that needs to be done to restore confidence and bring recovery, but only to mention examples, we need action by the Administration which will give assurance that promises to balance the budget are being carried out; action which will conform to the promises of the Democratic party and its candidates about sound money, government competition, etc. Then, when Congress meets, we need action to amend or repeal the unworkable and unjust Securities and Securities Exchange Acts, as well as action to repeal much other legislation establishing bureaucracies endowed with legislative, administrative and judicial functions.

Unless oral assurances which might now be given are followed by immediate and effective action, we shall still be floundering in confusion with recovery indefinitely postponed.

E. V. O'DANIEL,
Vice-President.

Withdraw Government Competition

THE INGALLS IRON WORKS COMPANY,
Birmingham, Ala.

EDITOR MANUFACTURERS RECORD:

Referring to the reprint from your September issue, entitled, "To Revive Confidence," you suggest that the President might say that "Government competition will not be extended in any direction." I believe you should have said—the Government will immediately withdraw its competition with private

The Accompanying Letters Are Expressive of the Rising Volume of Protest Against Policies and Practices That Undermine Business Confidence and Retard Recovery.

industry. If their plans are carried to their "illogical" conclusion, irreparable damage will be done to thousands of people on main street.

R. I. INGALLS, President.

Facts The Public Should Know

TRACKSON COMPANY

Crawlers and Tractor Equipment
Milwaukee, Wisc.

EDITOR MANUFACTURERS RECORD:

The editorial, "WHAT CAN BE DONE?", appearing in the September MANUFACTURERS RECORD, is the first and only article that we have seen giving direct and constructive suggestions. It is difficult to predict the benefits that would result from a clear-cut Executive statement along the lines suggested in your editorial.

Washington has favored experiments, and since none of your suggestions are contrary to the policy of the New Deal, possibly the idea could be sold in executive circles to try them out. We cannot help but feel that the confidence resulting from such assurance would hasten the much talked of "Flash Point" of Major Angus and start our country on a new era of prosperity.

We trust that you will not restrict the circulation of this constructive editorial but place it in the hands of all officials in Washington, as well as send copies to the leading newspapers.

May we take this opportunity of congratulating the MANUFACTURERS RECORD on this excellent editorial.

L. E. DAUER,
Vice-President.

Restore Sound Principles

MILAM MANUFACTURING COMPANY
Tupelo, Miss.

EDITOR MANUFACTURERS RECORD:

We wish to express our appreciation of the editorial which appeared in your September issue, under the heading "What Can Be Done?", and lend to it our fullest endorsement.

While admitting much improvement in general conditions, locally, it has been

at too great a cost for those of us who cannot keep their factories operating, merely on local sales. The cost referred to, cannot be measured in dollars and cents alone, for it seems to us that the entire nation has lost all sense of independence and pride—the thing which has always caused men to revolt at the mere thought of losing their independence to the degree of asking their government for "something for nothing."

L. G. MILAM.

A Firm Stand Needed

THE GEOMETRIC TOOL COMPANY
Machinery and Tools
New Haven, Conn.

EDITOR MANUFACTURERS RECORD:

Just a line to compliment you on the editorial entitled "What Can Be Done?" that appeared in your September issue. I think I haven't seen a clearer statement.

I only hope and pray that the radical wave that is present all over the country today will subside sufficiently to warrant our politically minded President in making the statement that you suggest he should make.

JAMES W. HOOK,
President.

Revise Alabama Foreign Corporation Law

DANIEL W. TROY
Counsellor at Law
Montgomery, Ala.

EDITOR MANUFACTURERS RECORD:

Former Governor Bibb Graves, who will again become Governor in January, has asked me to draft a bill to be introduced as an administration measure this winter, to completely revise and simplify the present Alabama foreign corporation law. What we have in mind is a statute which will be clear, simple, fair and workable and, if possible, attract corporations to Alabama.

We are endeavoring to obtain frank criticisms from corporations which have done business under the present law. If you can bring this condition to the attention of corporations generally, suggesting the revision and the desire for such constructive criticisms, to be mailed to Suite 1003 Bell Building, Montgomery, Ala., it will be of material help to us in a praiseworthy effort to make Alabama an attractive field for out of State corporations.

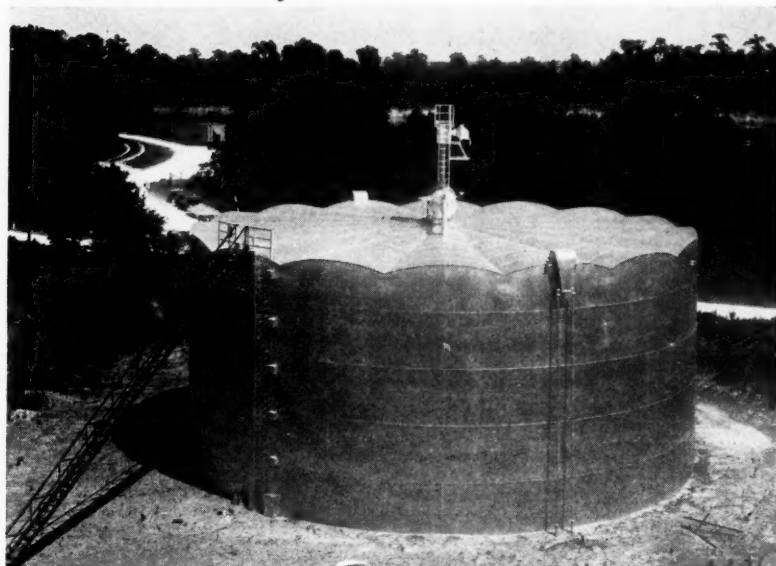
DANIEL W. TROY.

The New Radial Cone Design Tank

WE have recently developed the Radial Cone tank for the storage of natural gasoline and other volatile liquids. It consists of a cylindrical tank with a radial cone roof and bottom similar in construction to the radial cone bottoms we have used for the past few years on large elevated water tanks.

This design is built in capacities of 55,000 and 80,000 bbls. to withstand internal pressures of from one to ten lbs. per sq. in. The purpose of the design is to permit thermal expansion to build up a pressure inside the tank instead of allowing vapor to be vented out of the tank, and thus stop evaporation loss.

Our nearest office will be pleased to submit information and quotations should you desire to consider installing this new type of tank to store volatile liquids.



Radial Cone tank built for the Warren Petroleum Co. at Houston, Tex.

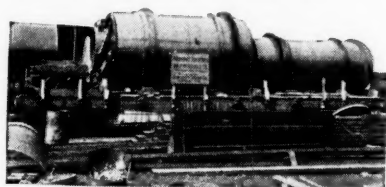
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This applies to field as well as shop built equipment.

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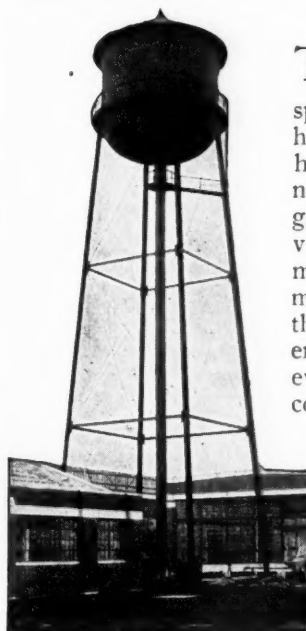
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Stacks, and other
forms of Steel Plate
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INDUSTRIAL NEWS

American Institute of Steel Construction

Expected to be the largest convention ever held by the industry, the Twelfth Annual Convention of the American Institute of Steel Construction to be held at Edgewater Beach Hotel, Chicago, October 25-26, is also expected to be the most interesting from a constructive point of view, according to V. G. Iden, Acting Secretary of the Institute. The "code" problem of the industry will be discussed in detail with a view to obtaining final action on NRA efforts to "regiment labor and change marketing plans." Correlated with that, new marketing plans of the hot steel industry which may have a bearing upon the rights of distributing agencies will also be discussed. In addition, the future for public works, plans for housing and various technical advances achieved in steel construction will be considered.

"The Du Pont Company and Munitions"

Under the above title, E. I. du Pont de Nemours & Company, Wilmington, Del., have issued a comprehensive statement in booklet form to its stockholders and employees. Its declared purpose is to present for the information of two groups—stockholders and employees—essential facts of the company's position regarding the manufacture and sale of war munitions. It makes the statement that "the plain business interests of the company lie overwhelmingly in the direction of the continued maintenance of world peace," and in support of this declaration points out that in recent years the company's expansion of activities include practically the whole range of chemical manufacture and now it is essentially and chiefly a manufacturer of products entirely unrelated to war.

Reorganization of Globe-Wernicke Company

Plans for the reorganization of The Globe-Wernicke Company, Cincinnati, Ohio, approved by the Federal District Court at Cincinnati, provide that the new company take over assets and operation of the old company October 1. Following complete reorganization under the Federal Corporation Reorganization Act, the directors elected, J. S. Sprott, president and general manager, H. H. Wittstein, vice president in charge of sales; D. B. Morrow, vice president and secretary, F. A. Schmitz, vice president in charge of production, and J. E. Blaine, treasurer. This company is one of the pioneer manufacturers of steel and wood office equipment and supplies. Its plant contains more than 26 acres of floor space.

Baldwin Locomotive Changes

Effective September 17, the Baldwin Locomotive Works, Philadelphia, Pa., assumed all sales and engineering of products of its subsidiary, The Whitcomb Locomotive Company, Rochelle, Ill., and established an Internal Combustion Locomotive Section of its Sales Department in charge of H. H. Perry, manager, assisted by H. V. Huleguard. Mr. Perry is now vice president and general manager, and Mr. Huleguard sales manager of the Whitcomb Locomotive Company. Whitcomb domestic sales agents will continue to sell in the name of Whitcomb. The Whitcomb plant will continue the manu-

facture of Whitcomb products at Rochelle, and orders for repair parts and servicing of Whitcomb products in the field, will be handled at Rochelle by L. W. Wrenn, as Baldwin sales correspondent.

Sale of Radio and Refrigerator Plant

By order of the United States District Court, Frank M. McKey, trustee in bankruptcy, is liquidating the assets of the

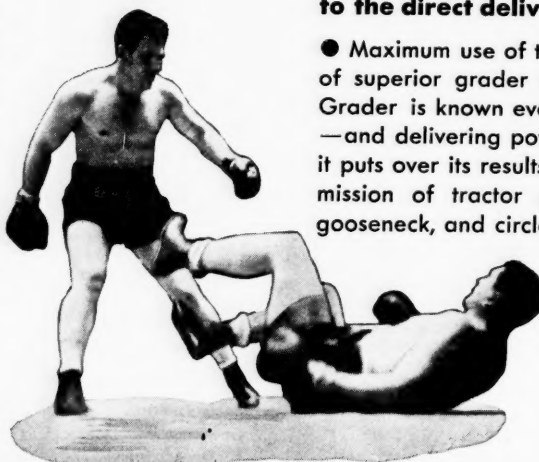
Grigsby-Grunow Company, Inc., Chicago, which was the largest manufacturers of radios, tubes and refrigerators in the country, having distributed over 3,000,000 radios, 18,000,000 tubes and 189,000 Majestic refrigerators. Equipment consists of fine types of metalworking and woodworking machinery and there are completely equipped tube, enameling and plating plants, all in immediate operating condition. Inventory consists of made-up parts, parts in process and raw material for radios, refrigerators, and radio tubes. The service department on all three items is intact. The factory buildings have a floor space of 950,000 square feet, suitable for almost any type of manufacturing. The trustee is authorized to sell at public or private sale, and will receive offers for any part or parcels of the assets.

(Continued on page 58)



As every muscle in the Champion's body DELIVERS POWER

...the entire design of this grader contributes to the direct delivery of power to the blade...



● Maximum use of tractor power! The first essential of superior grader performance. The Austin Road Grader is known everywhere for taking punishment—and delivering power. The reasons are many why it puts over its results with a punch, but direct transmission of tractor power through the draw bar, gooseneck, and circle to the blade—is fundamental.

● Hydraulic control available except on No. 8 Grader. If you want to know the factors—massive box frame, control flexibility, etc.—that account for Austin Road Graders leadership, send the coupon below.

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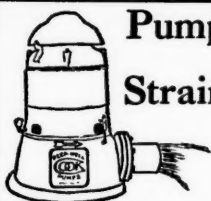
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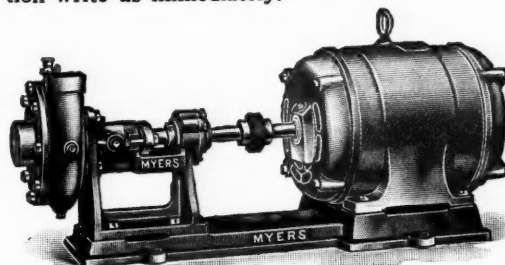
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Our new Centrifugal Pump Catalog, No. CT34, is complete with illustrations and descriptions of the different styles and sizes in which Myers Centrifugal Pumps are now built. If you have not received a copy and desire detailed information write us immediately.



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IN STANDARD AND SPECIAL ANALYSES

CENTRAL IRON & STEEL COMPANY...HARRISBURG, PA.

INDUSTRIAL NEWS

(Continued from page 56)

Chicago Pneumatic Tool Moves Birmingham Office

Chicago Pneumatic Tool Company, New York, announces change of address of its office in Birmingham, Ala., from 1829-31 South Second avenue to 211 South 20th street. This move provides increased facilities for both sales and service activities of the company. W. S. Lynch is manager of the Birmingham District office.

Would Represent American Products in Morocco

Cristobal Lopez Perez, Casablanca (Dar el Beda), Morocco, writes the Manufacturers Record that he is interested in representing export houses for metal articles in general, such as copper wire, galvanized iron tubes, aluminum, black and galvanized iron plates, accessories for automobiles, and in general every class of iron products.

Alfol House Insulation.—Alfol Insulation Company, New York City, has issued a new bulletin devoted to Alfol House Insulation, a scientifically designed house insulation, consisting of single or multiple sheets of pure aluminum foil for installation between wall studs, furring strips, ceiling joists or roof rafters.

Falk Motoreducers.—The Falk Corporation, Milwaukee, Wis., has issued Motoreducer Bulletin No. 272, the first publication dealing with the company's complete line of Motoreducers. It presents for the first time data on the 2-Speed Motoreducer and of rating tables, and illustrates and describes some interesting installations and applications.

Truck Tanks and Semi-Trailer.—A complete range of transportation equipment from the small standard truck tank to the new streamline outfits now coming into favor are described in an artistic brochure issued by the Columbian Steel Tank Company, of Kansas City, Mo.

Permite Leaded Phosphor Bronze Bars.—Aluminum Industries, Incorporated, Cincinnati, Ohio, has issued a folder illustrating and describing a new product of the company—Permite Leaded Phosphor Bronze Bars—a bearing bronze in bar form available in standard 6-foot lengths.

Aluminum Paint.—The Aluminum Company of America, Pittsburgh, Pa., under the title of "Aluminum Paint—Its Uses and Application," has issued a 62-page booklet describing advantages of and illustrating the application of aluminum paint prepared with high quality aluminum pigment such as Alcoa Albron aluminum bronze powder or paste. A brief article pertains to the use of aluminum paint in the manufacturing industry.

Recommended Standards of Illumination.—Based upon practical considerations and economic justification, the Nela Park Engineering Department of General Electric Company at Cleveland, Ohio, has compiled a new set of recommended foot-candle standards for illumination design. The tables are embodied in a 22-page booklet issued by the company.

Blaw-Knox Automatic Weighing Equipment.—Blaw-Knox Company, Pittsburgh, Pa., manufacturers of steel products, has issued Bulletin No. 1487, illustrating and describing Blaw-Knox Automatic Weighing Equipment for sand, coarse aggregates, cement, water, etc.

"Struthers-Weld."—The Struthers-Wells Company, Warren, Pa., has issued Bulletin M13 on "Struthers-Weld Certified Machine Parts of All Commercial Metals" which points out that "Struthers-Weld" machine parts service is available to supplement equipment of shop operators.

Dow Chemicals.—The Dow Chemical Company, Midland, Mich., has issued an unusually interesting catalog on industrial chemicals, the information covering a wide range which embraces nearly all scientific facts needed to determine the application of a product to a given use. Over 250 products are listed, with pertinent information on their properties, specifications, uses and shipping classifications.

Protection for Boilers.—The Yarnall-Waring Company, Chestnut Hill, Philadelphia, Pa., manufacturers of power plant devices,

have issued catalog, WG-1803, covering the improved line of Yarway Hi-Lo Alarm Water Columns and Yarway Vertical and Sessure-Inclined Water Level Gages for boilers.

Armco Enameling Iron.—Two pamphlets issued by The American Rolling Mill Company, Middletown, Ohio, include: "Facts You Should Know About Armco Enameling Iron," which presents general information on the company's products to the enameler, fabricator and purchasing agent, and "How Porcelain Enamel Can Help You Sell More Profitably," a publication designed for job enamelers and their retail outlets.

Cast Iron Pipe.—Installation by the Southern Alkali Company of 61 miles of 14-inch Super deLavaud pipe at Corpus Christi, Texas, is the longest single cast iron pipe line in recent years. The pipe is equipped with Anthony joints, the largest installation of Anthony joint pipe ever made. It takes the brine from the company's wells to the Alkali plant for the manufacture of soda ash and its by-product caustic soda. The September issue of The U. S. Piper, house organ of the United States Pipe and Foundry Company, illustrates and describes this construction feature of the Southern Alkali Company's new plant.

Farm life Conception

When one mentions "the farm" one naturally forms a mental picture of what constitutes a farm. Do you picture a cozy cottage in a setting of fruit trees, with flowers and shrubs about and a massive barn out back, chicken yards, pigs in a pen, cows grazing in the pasture, a family vegetable garden and land stretching out beyond for growing market crops? Does your mind picture an appetizing meal prepared from the products of the farm?

Anyway, that is the vision we should see and more Florida farms should conform to that picture. It is unfortunate for the farming industry that during past years a great many turned to the occupation of farming as a means of livelihood, with the thought of an easy living. Plant a crop and watch it grow. It was an occupation that offered a living with little effort, at least one could exist. This has been true especially in the South and particularly in Florida, where the fruits of the soil are harvested practically the year 'round.

But we are now in a different era. Careful, intelligent planning and management have made the farm a place of good living, especially the small diversified farm, and we need more of the kind of farmers who visualize and can actually materialize a farm as we first pictured.

Such farming is the natural, sure way to live a normal, happy life, always assured of plenty to eat. When pears are ripe a good quantity is canned and

stored. The same is true of other fruits and vegetables. Cured meats are stored away, and the garden in season, the chickens and the cow give their share, leaving very little to buy.

Of course, it requires work to live in such secure luxury, and who will dispute that such living is "secure luxury." There are things to be done on the farm every day, rain or shine, and there are many difficulties to overcome. One must keep continually on the alert for better methods of planting, cultivating and combating the natural enemies of crops and trees. It is no lazy man's job. It is a fascinating, invigorating work that requires both brain and brawn, a pleasant, healthful occupation when intelligently pursued.

Our present day mode of living has raised the standard of farm life to that of the city dweller. Machinery, electric lights, plumbing in the home, radio and many other little conveniences are the farmer's at a very nominal cost. Towns and cities, with their shopping centers, theatres and other amusement centers, are more numerous and easily reached by auto over hard-surfaced roads. With all this the farmer can really live and enjoy living. He has a feeling of security, no thought of losing "his job."

In truth, farming, intelligent, diversified farming, is the true American mode of living and is worth the consideration of those who have the ambition to live for the joy of living.

For Florida Farm Literature—write—

MODEL LAND COMPANY

Flagler System

St. Augustine—Florida

BELMONT IRON WORKS

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Southern Sales Offices, Charlotte, N. C.

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Wood products that are pressure-treated with ZMA or Creosote have a life of from 8 to 20 times that of unpreserved lumber. Once treated in this way in Eppinger & Russell Co.'s preserving plants, construction lumber and timber are permanently immune to dry rot, decay and termite attack.

ZMA treated woods are clean and odorless, without any discolorations, and can be painted or stained any desired color. Complete information on request.

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**Structural Steel and Ornamental Iron
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For Bridges, Buildings and All Industrial Purposes

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Complete Stock Shapes, Plates, Sheets and Bars for
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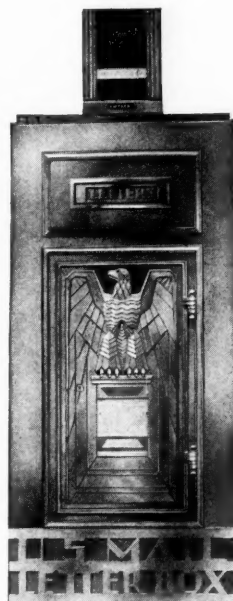
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USHERING IN NEW LIGHTING ERA

THE 28th annual convention of the Illuminating Engineering Society and the National Illumination Conference and Exposition held in Baltimore last week marked the beginning of a new era in the lighting industry. More than 500 members were in attendance, the informative papers on technical and non-technical lighting subjects, and the number of exhibits of new lighting equipment which attracted unusual interest proclaimed this meeting as the most successful in the past several years.

Great strides have been made in the science and mechanics of lighting in the 24 years since the Society last met in Baltimore. A. L. Powell, Eastern Manager of the Nela Park Engineering Department of the General Electric Company, and the new President of the Illuminating Engineering Society, said that the trend from now on will be efficiency lighting. Lighting will be "prescribed" for the home and industry to secure the proper degree of intensity under which women and men should work.

The lighting industry is not going to be concerned so much in the future with the mere installation of lighting fixtures as with the scientific installation of the type and kind of illumination prescribed for correct "seeing" for the preservation of eyesight and bodily health. The illuminating engineer has become a "seeing" specialist. In future every factory will be equipped with a "light" meter with which it can check at all times the "seeing" conditions in the factory at every point where the proper light is required.

There will be no lessening of the effort to create better and more efficient fixtures or continued mechanical improvement and design that has been pronounced in recent years. The scientific and the practical will be combined to give light of the right intensity where it is needed.

Most factory owners buy the latest design in automobiles. They would not think of running models that have become obsolete and inefficient and yet in their business from which they are dependent for their livelihood they tolerate lighting conditions that are costly and dangerous. Statistics show that at least 15 per cent of the 14,000 persons killed in industrial accidents last year was directly or indirectly caused by poor lighting, said Ward Harrison, Director

of the Nela Park Engineering Department. In addition, he pointed out that approximately 7,000 of the 31,000 persons killed in automobile traffic accidents last year was the result of inadequate street and highway lighting.

A recent survey of the industrial plants of this country shows 90 per cent of them to be under-lighted and nearly all to be under-wired. The chief impediment to their being properly lighted is under-wiring. The advent of the high intensity mercury lamp should mean much to these factories, for it is said to enable them to substantially double their illumination without any corresponding increase in the load of wiring. In the street lighting field, we have for many years been trying to light an area a mile long and 50 to 100 feet wide with about the same number and size of lamps required for a good-sized office. The very high efficiency of the new sodium lamps makes it possible to really illuminate large areas which have to be dealt with in street and highway lighting.

Among other topics discussed at the 28th annual convention were: "Factory Lighting to Fit the Facts," an analysis of industrial lighting problems used so successfully in Philadelphia's "Better Light—Better Sight" campaign, by Arthur A. Brainerd, director, Lighting Service Division, Philadelphia Electric Company; "Better Service by Group Lamp Replacement" was defined and its advantages set forth by W. P. Lowell, Jr., commercial engineer, Hygrade Sylvania Corporation, Salem, Mass.; "Modern Lighting in Streamlined Trains and Electric Rail Cars" was described by R. W. Cost, commercial engineering department, Westinghouse Lamp Company, Bloomfield, N. J.; "The Influence of 'Built-In' Lighting Forms on Direct Lighting Methods" was discussed and several of the more important factors summarized by H. L. Logan, engineering consultant, Holophane Company, New York City; "Street Lighting and the Science of Seeing" in which the need for adequate visibility was emphasized, by Paul H. Goodell, street lighting engineer, General Illumination Engineering Company, Cincinnati, O.; and the "Illumination of Structural Glass" reviewing the developments of structural glass and problems involved in the illumination of glass bricks, tiles and other architectural forms, by C. S. Woodside, commercial engineering department, Westinghouse Lamp Company, Bloomfield, N. J. Other papers of a more technical nature discussed scientific and engineering top-

90 Per Cent of Industrial Plants Are Under-Lighted and Practically All Are Under-Wired

ics of especial interest to the members. Headquarters of the Society are at 29 West 39th Street, New York City.

Among the exhibitors at the 28th annual convention of the Illuminating Engineering Society were:

ART METAL COMPANY
ARTISTIC LAMP MFG. COMPANY, INC.
BENJAMIN ELECTRIC MANUFACTURING COMPANY
CROUSE-HINDS COMPANY
CURTIS LIGHTING, INC.
DAY-BRITE REFLECTOR COMPANY
ELECTRIC SERVICE SUPPLIES COMPANY
ELECTRIC TESTING LABORATORIES
GARDEN CITY PLATING AND MANUFACTURING COMPANY
GENERAL ELECTRIC COMPANY
GRAYBAR ELECTRIC COMPANY
EDWIN F. GUTH COMPANY
HOLOPHANE COMPANY, INC.
LIGHTOLIER COMPANY
MUTUAL SUNSET LAMP MANUFACTURING COMPANY
PHILADELPHIA ELECTRIC AND MANUFACTURING COMPANY
RAILEY CORPORATION
F. W. WAKEFIELD BRASS COMPANY
WADSWORTH ELECTRIC MFG. CO., INC.
WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY
WESTINGHOUSE LAMP COMPANY
WESTON ELECTRICAL INSTRUMENT COMPANY
THE WIREMOLD COMPANY.

National Power Show

The Eleventh National Exposition of Power and Mechanical Engineering is to be held December 3-8 at the Grand Central Palace in New York City. This national power show, held every two years, is the meeting place of industrialists and engineers who come to view the latest types of equipment presented by outstanding producers of the country.

This year's exposition will feature improved power plants, machinery and processes designed to reduce operating costs. Equipment obsolescence, lack of repairs and renewal units are taking a heavy toll of industry in these days of higher labor costs, and the exhibits this year will make a special appeal to manufacturers seeking highly efficient and most up-to-date equipment.

The week of the Exposition coincides with the December 3-8 midwinter meeting of the American Society of Mechanical Engineers, a factor of convenience to members who come to New York to attend both. The Eleventh National Exposition of Power and Mechanical Engineering, like those preceding, is under the direction of the International Exposition Company, with Charles F. Roth, again personally in charge.

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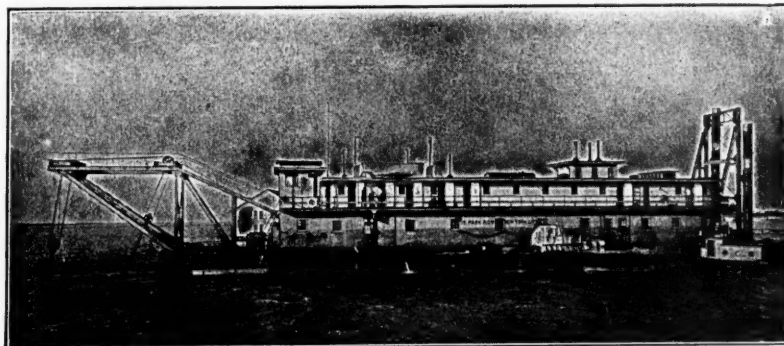
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**Correspondence invited from corporate
and private interests everywhere.**

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NEW YORK: 15 Park Row

HOUSTON, TEXAS: Scanlan Building

SOUTHEASTERN DEVELOPMENT BOARD

By

W. S. Lee, Jr.

Chairman, of the organization committee,
Charlotte, N. C.

THE Southeastern Development Board is a regional organization being formed to promote on a broad scale the economic advantages of the section. The board aims to break down local and state lines—destroy petty jealousies and unite the Southeast for the common good.

For the past eight months an organization committee has been discussing the program with responsible business leaders in each of the six Southeastern States—Virginia, North Carolina, South Carolina, Georgia, Alabama and Florida. In each State the chief executive agreed to serve as honorary State chairman and a State board or council is being organized with representatives from every section. Directors, appointed by the governors, have been selected in North Carolina, South Carolina, Georgia, Alabama and Florida.

The program is in a formative stage. A meeting of the directors and others interested will be held at Atlanta late in November when permanent officers will be elected and a program approved.

The Southeastern board will initiate a broad-gauged promotion program to focus attention on the section. Specifically it will acquaint the nation and world with the economic, climatic, historic, scenic and agricultural advantages of the Southeast. It will serve to stimulate industrial activity. Rather than attract industries from other sections it will be more interested in discovering latent local industrial possibilities. The board will departmentalize to include departments on Transportation—advertising—education—labor—finance and other major activities.

The board will serve as a planning body and offer council and advice to chambers of commerce, advertising groups and other civic organizations. It will coordinate the existing activities and jointly solve common problems. In short it will bring the benefits of organized leadership to the section. Cooperation from responsible leaders throughout the Southeast has been given.

Acting officers of the organization to date are:

Howard E. Coffin, Chairman of Board, Sea Island, Ga.; W. States Lee, Jr., President, Charlotte, N. C.; Hon. John

T. Alsop, Jr., Vice-President, Jacksonville; Edward Ball, Treasurer, Jacksonville; Jackson Matthews, Secretary, Charlotte, N. C.

Members of State advisory boards are:

Alabama

Senator John H. Bankhead, Advisory Board; Governor B. M. Miller, Honorary State Chairman. Directors: Thomas W. Martin, President, Alabama Power Co., Birmingham; John Cochrane, President, Alabama, Tennessee and Northern Railway, Mobile; Jack Thorington, Attorney, Montgomery.

Florida

Senator Duncan U. Fletcher, Advisory Board; Governor Dave Sholtz, Honorary Chairman. Directors: M. M. Traynor, Manager, Portland Cement Co., and President of the Chamber of Commerce, Tampa; Leonard Thompson, Manager, McAlister Hotel, Miami; A. B. Dooley, District Manager, Southern Bell Telephone Company, Pensacola.

Georgia

Senator Walter F. George, Advisory Board; Governor Eugene Talmadge, Honorary Chairman. Directors: Harrison Jones, Executive Vice-President, Coca Cola Co., Atlanta; Herschel V. Jenkins, Publisher, Savannah; Henry McIntosh, Publisher, Albany.

South Carolina

Governor Ibra C. Blackwood, Honorary Chairman. Directors: Dr. H. N. Snyder, President, Wofford College, Spartanburg; Christie Benet, Attorney, Columbia; Burnet R. Maybank, Mayor of Charleston and President of Maybank Brothers, Charleston.

North Carolina

Senator Josiah Bailey, advisory board; Senator Robert R. Reynolds, advisory board; Governor J. C. B. Ehringhaus, Honorary Chairman. Directors: Julian Price, President, Jefferson Standard Life Ins. Co., Greensboro; Reuben Robertson, Champion Fibre Co., Canton, N. C.; C. E. Taylor, President, Wilmington Savings & Trust, Wilmington.

Virginia

Senator Harry F. Byrd, advisory board; Governor George C. Peery, Honorary Chairman.

It is expected that Governor Peery will name John M. Miller, Jr., president of the First and Merchants Bank, Richmond, E. C. Dodson, vice-president of the Seaboard Bank, Norfolk, and Junius P. Fishburn, publisher, Roanoke, to act as State directors.

Skilled Technical Workers Needed

The need for training men and women for highly skilled technical work which Virginia industries are now forced to have done outside the State, is emphasized in a recent report by Sidney B. Hall, superintendent of Public Instruction in that State.

Many manufacturing plants, he says, are producing only semifinished prod-

ucts, and are sending these products out of the State to be finished by highly skilled and hence highly paid workers in other States.

This is particularly true of plants manufacturing silk and rayon. The manufacture of these products in the State stops with the production of raw yardage. The subsequent processes to which these goods are subjected before they reach the ultimate consumer, involve the services of artists, pattern designers, dye sinkers, costume designers, finishers, cutters, and assemblers.

If Virginia is to continue its rapid industrial development there must follow in the wake of the industries now employing unskilled and semi-skilled workers, manufacturing plants which can absorb the products of these industries.

TVA Experiment

There is printed elsewhere in this number a description of the Federal Government's vast and costly experiment through the Tennessee Valley Authority in "economic planning."

The outcome is being watched not only with interest but apprehension by those who fear its effect upon private industry and the investments of many thousands of people in utility enterprises.

As a true yardstick for the cost of electricity throughout the country, obviously it is out of the question. The costs of real estate, of labor and other operating conditions vary too greatly.

It is not only an experiment in "planned economy," but is, apparently, intended as a phase of "the more abundant life," whatever that may mean, and is to be extended into various sections at a cost of billions. This is only the start.

An advertisement in this issue by Appalachian Coals, Inc., calls attention to the effect the Government's hydro electric power program in the Tennessee Valley will have on the coal industry, with the attendant consequences of putting thousands of miners out of work, causing large revenue losses to railroads serving the coal fields, as well as duplication of existing facilities maintained by private power companies.

Appalachian Coals, Inc., is preparing a pamphlet in which it proposes to set forth for the information of the public their side of a question that is most important in charting the future business course of this country. Both sides of this experiment in "economic planning" and "social management" should be carefully studied and the advantages and disadvantages of this momentous change in both our economic and social life, as well as its cost, carefully weighed.



Mascot Chatts

ASPHALTIC ROADWAY GRAVEL

ROOFING GRAVEL CRUSHED STONE

ASPHALT FILLER DUST

American Limestone Company
Knoxville Tennessee

CRUSHED LIMESTONE Best for All Purposes

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.

Quarries opened up in 1912.
Capacity 8000 tons daily.

Four Quarries

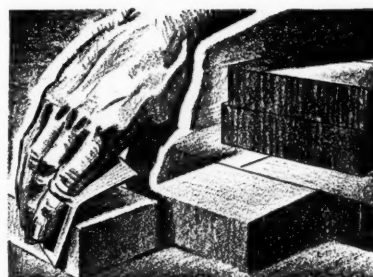
Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.
Boxley, Greensville County, Va.

W. W. BOXLEY & COMPANY

Room 711, Boxley Building, -ROANOKE, VA.

GLAMORGAN
PIPE & FOUNDRY CO.
LYNCHBURG, VA.

Manufacturers of
Cast Iron Pipe and Fittings
For Water and Gas Service



Brick Costs Far Less Per Year of Service

HERE are the reasons for the low cost of brick pavements. Brick is the finest of all protective surfaces for a pavement base. It protects these bases from weather as paint protects wood. It protects them from traffic as plate glass protects a table top. As a protective surface brick allows the costly base to give the fullest amount of service.

When you surface a job with brick, you seal out the weather. Water cannot enter the base to cause destructive expansion and contraction. The cushion course between brick and base deadens shock and impact. The brick itself furnishes ideal traffic surface, impervious to wear from hard, soft or chained tires.

These are the reasons back of the unequaled records for long life and low maintenance. They are the reasons back of the lowest costs for brick of any pavement in the U. S. Government's Chevy Chase Experimental road—for the splendid record of Indianapolis Speedway and for the scores of pavements which have been in service in different cities for 30 to 40 years or even longer.

Brick is really inexpensive. It costs more to do without it than it costs to use it. National Paving Brick Association, National Press Building, Washington, D. C.

South Sixth Street, Terre Haute, Indiana, was brick paved in 1893 on a crushed stone base. Maintenance has been negligible for 41 years and condition excellent where subgrade has been undisturbed.



AIR CONDITIONING SOLD BY VISUAL DISPLAY

A plan, unique in its field, of selling air conditioning to the public by means of an actual visual demonstration of its benefits, has been successfully inaugurated at the Houston, Texas, Branch office of the York Ice Machinery Corporation, coincident with the complete renovizing and modernizing of that office.

The new visual selling plan combines the advantages of adequate display of mechanical equipment, with an opportunity for the public to see, in actual operation, the latest and most improved type of York air conditioning equipment designed for home or office installation, which produces the comfortable, agreeable effect of air that is washed, filtered and gently circulated, summer or winter, at temperatures that may be automatically regulated and controlled for maximum comfort.

Within the attractive Houston York Branch has been erected a miniature house, 20x24x12 feet. This house is air conditioned by a York Basement type air conditioner, to duplicate as closely as possible the conditions existing in the average modern, air conditioned home of today. One entire side of the house constitutes a large display window, facing upon the street, through which the latest designs of York Freon Balanseal refrigerating units and other auxiliary air conditioning equipment may be seen. Should the observer desire to feel for himself the effects of air conditioning, properly balanced temperature and humidity, he has but to step into the attractive little house to find himself in

York Ice Machinery Corporation's Houston Branch

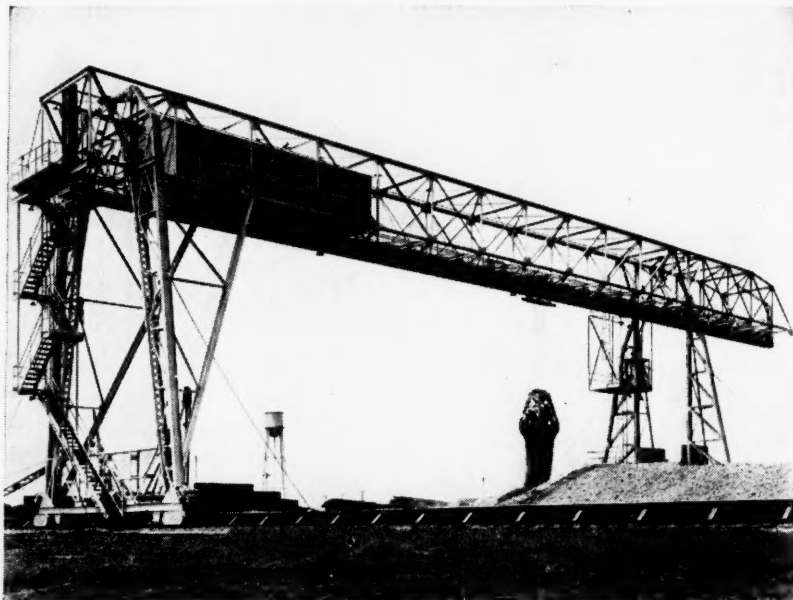
Insert at top shows display house erected inside of main building.



an interior where modern mechanical equipment in residential air conditioning creates an atmosphere of pleasant, restful comfort.

At night the entire front of the office building is flood lighted. The flood lights are automatically turned on and extinguished at given hours, by a time clock mechanism. Under these flood lights the large signs on the building are clearly visible, and every detail of the equipment displayed in the combination showroom and display window is brightly illuminated.

"The selling of air conditioning," said Walter E. Becker, Southern Regional Manager of the York Ice Machinery Corporation, in discussing this visual-selling plan, which he originated, "is quite different from the selling of the usual commodities—because you are selling something that is intangible.



Motor Driven Harnischfeger Crane at Freeport Sulphur Company's Grandepont, La., Terminal.

reclaiming capacity of 400 tons an hour, was built by the Harnischfeger Corporation, Milwaukee, Wis.

The recent Louisiana sulphur development of the Freeport Sulphur Company is the result of oil drilling operations which revealed enormous sulphur deposits near Grande Ecaille about 50 miles south of New Orleans. During 1933, Louisiana produced more than 300 tons, or about 23 per cent of the country's total sulphur output. Practically all of the sulphur mined in the United States comes from operations in Texas and Louisiana.

What you are really selling is not mechanical air conditioning equipment, but the comfort which air conditioning creates in the home, office or work-room."

Huge Crane for Handling Sulphur

One of the largest industrial projects in the South in recent months was the establishment of the Grande Ecaille, La., sulphur plant of the Freeport Sulphur Company and the construction some miles distant of a deepwater shipping terminal with 1000-foot docks at Grandepont, La., on the Mississippi River.

Sulphur is brought on barges from the Grande Ecaille deposit and unloaded in great stock piles on the docks for shipment to the markets of the world. In handling the sulphur, a huge motor driven crane is employed. By means of a hopper built into the crane and a belt conveyor, the sulphur is carried over the top of the Mississippi levee to be loaded directly into the holds of sea-going vessels. The crane, which has a



On the Levee— or Any Dirt-Moving Job

Continental Heavy-Duty Bulldozers are moving and grading at a surprisingly low yardage cost. These bulldozers grade as well as bulldoze. The blade can be tilted to any angle—hydraulically—without the operator leaving the tractor seat. Continental Bulldozers are designed and built for unusual stamina. They have the "gaff" to stand up under the most gruelling punishment. The blade is pulled or pushed directly from the tractor drawbar. "Dynamic Steel"—the steel that knows no fatigue—is used throughout in constructing these heavy-duty dirt-moving machines. And Continental Heavy-Duty Bulldozers can be converted into Continental Trailbuilders. Descriptive material on request.

CONTINENTAL ROLL & STEEL FOUNDRY CO.
EAST CHICAGO, INDIANA

Industrial Equipment Division

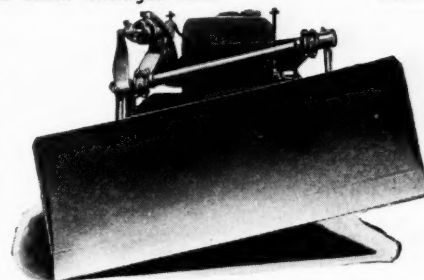
Chicago

332 South Michigan Ave.

Illinois

The Blade Tilts

The blade can be tilted as shown at the right. This is done hydraulically. The blade is powered also both up and down or held, hydraulically, in any set position.



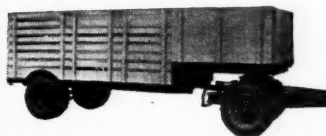
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Headquarters for Contractors' Equipment, Road Building Machinery, Power Farm Implements

"Caterpillar" Diesel Power Units.

"Caterpillar" Tractors, Blaw-Knox Forms, Blins, Ingersoll-Rand Compressors, Tools, Steel.
Graders, Road Mach'ry, Buckets, Batches.
Rex Pavers, Mixers, Red Edge Shovels, Picks, Buffalo-Springfield Road Rollers.
Pumps, Saw Rigs, Barber-Greene Ditchers, Hvas Asphalt Distributors, Sweepers, Flushers.
P. & H. Cranes, Shovels, Conveyors, Loaders, Killefer Road Rippers.
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CALL LONG DISTANCE MAIN 3964

"It's the payload that pays"—Increase it with Utility trailers
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Utility Trailer Works, Inc.
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The pioneer trailer builder of the South

"GREAT DANE" TRAILERS

Are Built to GIVE
Service, Not to
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Buckets in Power-Arm, Multiple-Rope, and Dragline types—for every need . . . Arch-Girder Trailers from 5 to 60 tons capacity. Write for descriptive bulletins.

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7003 Central Avenue, Cleveland, Ohio



VALUABLE
BOOK FREE

QUINN "HEAVY DUTY" PIPE FORMS HAND OR WET PROCESS

New national and state public works construction programs mean business for contractors and pipe manufacturers. Sewers and culvert pipe will be used in large quantities for some of the work. Get ready now for the demand.

Quinn Heavy Duty Pipe Forms are standard in every respect — assures pipe of highest quality. Backed by our 25 years' experience in the manufacture of concrete pipe equipment. Sizes 12" to 84"—any length. Tongue and Groove or Bell End.

WRITE FOR PRICES AND CATALOG

Also manufacturers of concrete pipe machines for making pipe by machine process.

QUINN WIRE & IRON WORKS

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CHARLESTON, S. C.

**BUILDERS OF
All Welded Ships**

Marine and Stationary Boilers

Repairs to Steel and Wooden Vessels

**1,500 and 600-ton
Marine Railways**

Savannah River Improvement

(Continued from page 29)

seven railroads and three national highways. From the standpoint of agriculture, manufacturing and clay products, this is one of the richest sections in the world.

Throughout the great territory which extends not only through the northern section of Georgia and western South Carolina, but into North Carolina and Tennessee, there will be an annual saving of from 10 to 30 per cent in freight rates, a saving which will amount to many millions of dollars per year to shippers into and out of the Southeast. The products that will move into this territory via the Savannah River are limitless in number, ranging from food to fuel, materials and machinery. The Wofford Oil Company, a subsidiary of the Pure Oil Company, recently established a terminal at Augusta and handles 1,000,000 gallons of gasoline a month. Moving out of Augusta from the Southeast will be cotton for the New England mills and foreign countries; cotton piece goods from the hundreds of great textile plants; cottonseed oil and by-products; clay products of

every description, including brick, hollow tile, and kaolin from the world's greatest clay belt, and granite from the Georgia quarries at Elberton, Lithonia, Camak and Sparta, together with other commodities of great variety.

The belief of those who have spent a good portion of their lives in promoting the Savannah River improvement is that Augusta will secure nine feet in the Savannah River following the six-foot channel development, and then 12 to 15 feet, which will mean that seagoing barges will discharge and load their cargoes along the Augusta waterfront, thus giving further impetus to the city's growth.

History teaches us that there is magic in water transportation for no other form has yet been devised that is comparable to water as an economic method of moving freight. Atlanta is one of three cities of this country in excess of a quarter of a million people that does not have a navigable waterway, and I believe that in the years to come the Chattahoochee River will be developed to the Gulf of Mexico and furnish a great avenue of commerce for Atlanta goods to be sent to the world.

The work for the development of the Savannah River began 15 years ago and has been prosecuted with relentless zeal ever since, by a small group of Augusta

people at first, and finally by the entire community as the citizenry awakened to the fact that they had a chance to make Augusta a port city. Augusta is now "river minded" and the people talk in terms of what is going to happen when there are dozens of barges loading and unloading their cargoes daily on the waterfront.

Years ago the Savannah River Improvement Commission, an unofficial body, but composed of men who believed in the future development possibilities, was formed, and about the same time the Augusta Traffic Bureau was also organized. These two agencies have worked together and in cooperation with the City Council of Augusta, the Richmond County Board of Commissioners, and the Government engineers in charge of the Savannah River who have rendered great service and gave encouragement during some of the darkest periods in the fight for river improvement and navigation from Augusta to Savannah.

WE ARE IN THE MARKET TO PURCHASE complete power plants, D.C. and A.C. Motors, generators transformers, and electrical instruments. Send us a list of what you have to offer. Let us have your inquiries on what you wish to purchase.
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MOUNT AIRY GRANITE
Peerless Beauty and Strength
THE NORTH CAROLINA GRANITE CORP'N.
Mount Airy, N. C.

Red Shale Face Brick

*Smooth and Rough Textures
Finest Quality—Finest Color
Fire-flashed—Wide Range of Color*

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Producers and Manufacturers of
GEORGIA MARBLE
TATE, GEORGIA
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**SAND—GRAVEL—BRICK
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Washed Sand and Gravel for Concrete
Roads and Buildings
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We solicit your inquiries
LEE CLAY PRODUCTS COMPANY
CLEARFIELD, Rowan County KENTUCKY

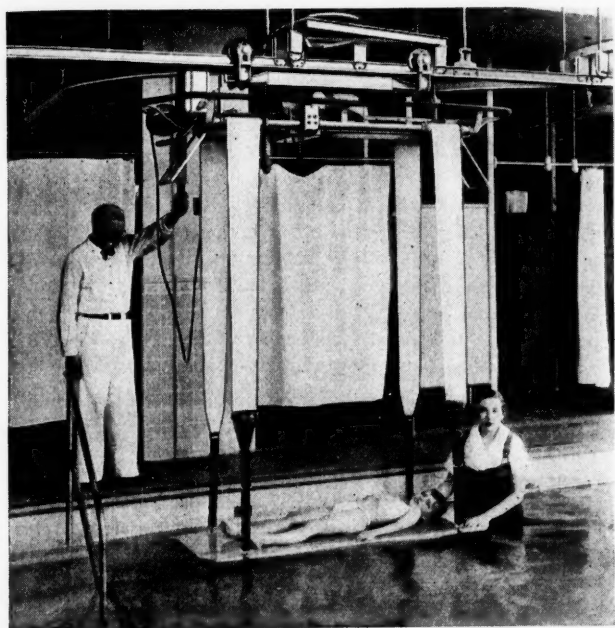
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BLOCK

Holt Hardwood Co., Oconto, Wis.

STRIP

MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION



Why this Unusual Photograph?

• Because we believe you are humanely minded—are interested in children and their welfare.

OVERHEAD Materials Handling Equipment is here used to transport paralyzed patients from one part of the building to another. The bed or "guerny" operated by a hoist is used to lower the patient into the pool where exercise is made easy by the buoyant effects of the water and the time of convalescence is very much shortened. There are numbers of other similar and related installations of Materials Handling Equipment.

Many manufacturers have planned and purchased Materials Handling Equipment with the welfare of employees as the major consideration. Such purchases in many instances have produced monetary returns sufficient to pay the cost thereof.

Consult your 'phone directory under Cleveland Tramrail.

CLEVELAND  **TRAMRAIL**
Hand or Electric
Overhead Materials
Transportation Equipment

CLEVELAND  **TRAMRAIL**
THE CLEVELAND CRANE & ENGINEERING CO.
WICKLIFFE, OHIO

IT IS SAFE TO BUY ON

Mechanical excellence, past performance, responsibility of the manufacturer, price (which should be least important).

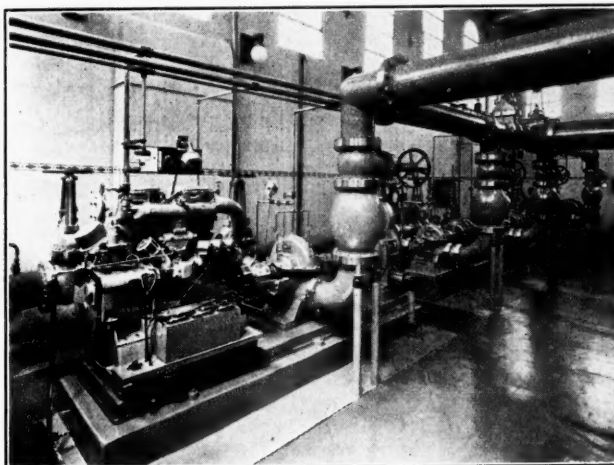
Judged by any standard, Sterling engines qualify.

Sterling
High
Duty



Internal
Combustion
Engines

12 to 565 B. H. P.
Gas or Gasoline



Two Sterling GRC-4 cylinder, 120 H.P. engines, 1200 R.P.M., are direct connected to DeLaval cent. pumps and serve as Standby units at El Centre, Calif.

STERLING ENGINE COMPANY

Home office and plant
1270 Niagara St.
Buffalo, N. Y.

Dept. C-7

Branch office
900 Chrysler Bldg.
New York, N. Y.

Mr. Willard Answers Some Railroad Questions

(Continued from page 23)

interest that the railroads, which operate their trains on their own right-of-way and rails, should be regulated concerning the ability, experience and qualifications of the men in their employ, and if it is also thought desirable in the public interest that the railroads should publish their rates and not change them without due notice, then it would seem equally desirable in the public interest that the trucks, for instance, which operate freely and at will on the highways without regulation of any kind, should also come under a proper measure of regulation concerning their employees and their operating methods, and that they should be subject to the same regulations concerning the publishing and changing of rates, that apply to the railroads. Undoubtedly if this were done it might result in increasing the operating costs of such competing carriers to some extent and they might not under such circumstances be able to make rates quite as low as they do at the present time. In that connection the question might well be asked: Does the public

really desire that freight trucks shall operate at will and without restraint upon the highways for the carriage of freight, and be free to name and change any rate at any time without notice? It seems to have been thought in the past that such a policy was not desirable from the standpoint of the public interest when applied to the railroads.

The railroads as I understand it, do not seek or expect any favors. They do desire an equality of opportunity to compete on equal terms with all competing transportation agencies. If, under such conditions, the railroad cannot justify its economic existence, then of course it must go the way of the canal boat and the ox-carf. Personally I have not the slightest doubt concerning the economic needs, possibilities and success of the railroads under conditions such as I have just outlined.

DANIEL WILLARD
President

Two Southern Expositions

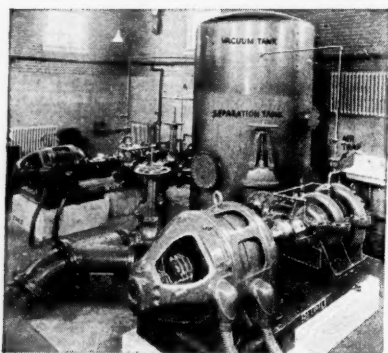
Texas and Florida are planning extensive expositions in 1936.

Dallas has been selected as the focal city for the celebration of the Centennial of Texas Independence in 1936 and in connection therewith will have an elaborate exposition. To the permanent

plant of the State Fair of Texas, comprising numerous buildings on a 145 acre tract, will be added 95 acres and a score of new buildings. After razing about 250 structures, new streets, street widening and landscaping will be undertaken. Will H. Mayes is secretary of the Texas Centennial Commission, Dallas.

An all-Florida exposition, popularly entitled, "Florida on Parade," is planned to be held at Orlando, opening in December, 1935, and running for 100 days. Preliminary consideration is being given to the construction factors of a dozen administration and exhibition buildings to house not only Florida exhibits but many from other Southern States and Latin America. A 90-acre site on three lakes has been acquired and is virtually ready for use with paved streets, light, power and railroad facilities. Crawford T. Bickford, secretary of the Orange County Chamber of Commerce, Orlando, is general manager of the "Florida on Parade" exposition project.

America's Capacity to Consume.—The second volume, "America's Capacity to Consume," following the 1st, "America's Capacity to Produce," is now available of a series of four studies devoted to an analysis of the Relation of the Distribution of National Wealth and Income to Economic Progress by The Brookings Institution, Washington, D. C. The price is \$3.00.



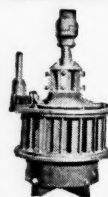
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BY means of the De Laval automatic priming system, water systems taking water from driven wells are served by **DE LAVAL CENTRIFUGAL PUMPS** with complete success, realizing great simplicity, low first cost, reliability and low cost for power. The pump control can, if desired, be effected automatically by pressure or altitude switches, with time clocks for utilizing low off-peak current rates. The pumps are kept primed at all times, standing or running, and are protected against sand as well as air in the water.

The photograph shows two De Laval pumps, of 525g.p.m. capacity each against 292 ft. at 1750 r.p.m., which draw from 2½ inch driven tube wells in the "Hundred Acre Farm" station of Reading, Mass., under control of pressure switches and with continuous automatic priming.

DE LAVAL STEAM TURBINE COMPANY
Trenton, New Jersey

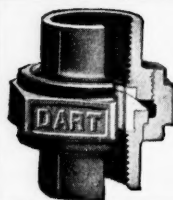
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TURBINE WATER WHEELS

Manufactured by

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A free sample to show you how two ground bronze seats give you twice the life from every Dart Union. Write for your sample! New Catalog and Price List No. 4-38.

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1933

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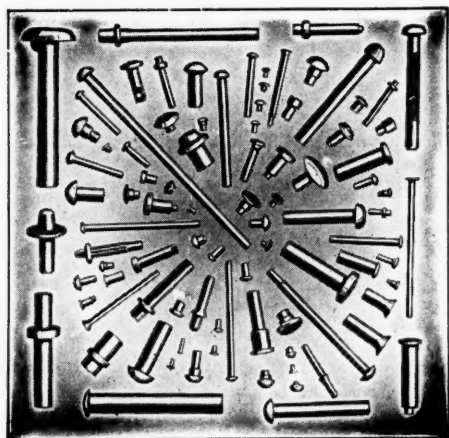
EARLE

Cut Spur, Bevel, Herringbone,
and Worm Gears

All sizes. Every description. Operating Machinery for Bridges, etc. "Lee Simpler" Cold Metal Saws.

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MACHINE SCREWS

Hexagon and Square Iron and Brass Nuts.

Interchangeable Bolts and Nuts (Promco Brand) Special Screws and quality Rivets to order.

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Let us furnish quotations on your products.

GENERAL MACHINE WORKS
York, Pa.



CLEAN, PRECISE CASTINGS

Complete Foundry Service for
Quantity Production
Brass, Bronze, Iron, Aluminum,
Nickel, Silver.

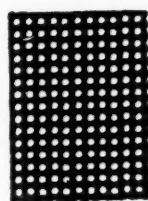
Contract Work on Small Machines and Devices

THE **RICHMOND**
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RICHMOND, VIRGINIA.

"A Dependable Source of Supply"

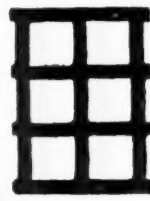
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For

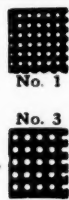
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All metals including Stainless Steel.

THE HARRINGTON & KING PERFORATING CO.
5631 Fillmore St., Chicago, Ill.
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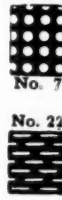
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PERFORATORS

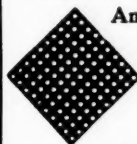
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Write for Copper, Brass, Tin, Zinc or
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MUNDT PERFORATED METALS



Any metal, any size, any perforation, for
any use. Large stock available
for urgent need.

65 years' experience enables us to give
superior service. MUNDT'S customers are
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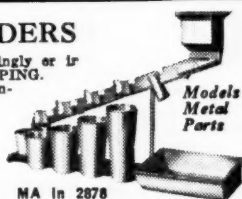
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We Build Devices in Their Entirety, Either Singly or in
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Weighing from 1 lb. to 500 lbs. each.

Quantity Production A Specialty
Nickel, Chrome and Other Alloy

Quick Delivery

Inquiries Solicited

CRUCIBLE STEEL CASTING COMPANY
LANDSDOWNE, DELAWARE COUNTY, PA.

Transforming Tennessee Basin Into Vast Testing Ground

(Continued from page 28)

by the barges is unloaded directly into the mixing plants or storage bins as required. Cement, also transported in specially constructed barges, is pumped into the storage bins.

Engineers declare that the river conditions at Wheeler Dam site are ideal for a layout of this character. The dam is located at the head of Lake Wilson, about 15.5 miles above Wilson Dam. Cement may be delivered direct by barge direct from manufacturer along the inland waterways, or else shipped by rail to the terminal at Wilson Dam and then transferred for delivery by barge.

The utilization of river transportation facilities for the delivery of materials and equipment, TVA engineers say, obviated the necessity of much expensive highway and railroad construction. Another interesting point about the economies inherent in this type of floating equipment is that after the dam is completed, the mixing plants may be moved to other points along the river where dams are to be constructed. In that way the original investment in equipment will be made to pay dividends.

Navigation Lock With 50 Foot Lift Being Built

Wheeler Dam includes a single navigation lock to have a lift of 50 feet.

Work on the lock began in January, 1933, under the direction of the U. S. War Department, Engineers Corps, contracts having been let in November, 1932, to Stevens Brothers and The Miller-Hutchinson Company of New Orleans, La. Original plans called for a lock to have a lift of 37 feet. When TVA assumed control it was decided to modify the structure so that it might be tied-in with Wheeler Dam of which it will be an integral part, the highest single-lift lock in the country. The new lock, 360 by 60 feet, will have an upper and a lower guard wall each about 400 feet long on the landward side and a lower guard 200 feet long on the river side. Between the landward side of the lock and the river bank, space has been left for a 600 by 110-foot lock when increased navigation warrants its construction. This space will be filled by a cut-off dam identical in design with the non-overflow section of the Wheeler dam. Contract for the cut-off wall was awarded in June, 1934, to the lock contractor. The total cost of the two projects is about \$1,600,000.

The lock will be extensively used for moving materials for the Wheeler Dam to the upstream side of the side. As the dam construction proceeds from the south bank to the north bank, the river will be confined to a steadily narrowing channel, and the swift flow of water precludes moving barges into position.

Construction of a lock began in January, 1933, a conventional Ohio River box-type of cofferdam being built to provide access to the river bed, consisting of limestone. Footings were carried about 8 feet into the limestone, 32,000 cubic yards of rock being removed to

provide clean surfaces against which concrete was poured. Ingersoll-Rand wagon drills were used for drilling and broaching. Excavated material was loaded into trucks by a 1-yard Koehring shovel. Concrete was placed by a plant consisting of three 1-yard Smith tilting mixtures set inside the cofferdam. Materials were supplied by a floating whirley through two Blaw-Knox bins and weighing batchers. Cement was shipped by barge from the Cape Girardeau, Mo., plant of the Marquette Cement Manufacturing Company. Delivered in bulk it was pumped by a Fuller-Kinyon compressed air pump to a bin in the mixing plant. Aggregates were supplied by the Tennessee Valley Sand & Gravel Company, being dredged from the river about 25 miles downstream. The Treadwell Construction Company supplied castings and structural steel.

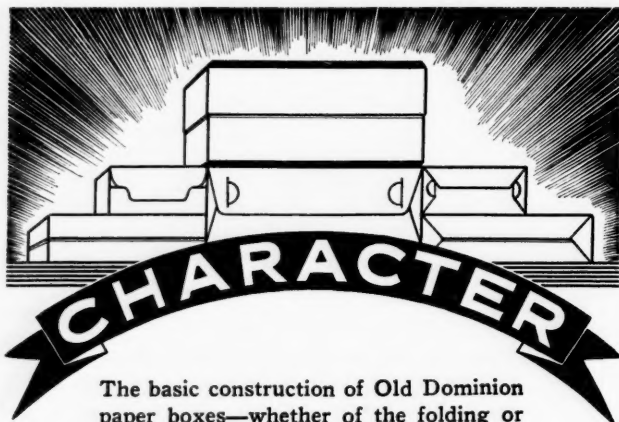
With the lock nearing completion work is proceeding satisfactorily on the cut-off wall, operations being similar to those for the lock construction.

The Nashville District office of the War Dept., Major R. R. Neyland district engineer, is supervising construction of the lock. Captain H. D. Riley and G. P. Fleetwood are in immediate charge. H. W. Miller is directing the work.

Heavy Duty Highway Serves Norris Dam Site

In lieu of rail connection to the Norris Dam, the Land Planning Division built a 4.8 mile highway from Coal Creek, the nearest railroad, to the dam site. Of reinforced concrete, the 22-foot pavement was constructed in record time by

(Continued on page 72)



The basic construction of Old Dominion paper boxes—whether of the folding or set-up type—bespeaks a character and comeliness that can come only through long experience and sincere effort to give all box users the most for their money.

Write for samples, prices.

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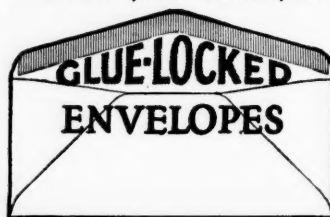
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WRITE US

TUPELO CHAMBER OF COMMERCE
TUPELO, MISSISSIPPI

A growing industrial city

Transforming Tennessee Basin Into Vast Test- ing Ground

(Continued from page 70)

W. W. Boxley & Company of Roanoke, Va. All the cement, steel, generators and machinery required for the dam will be hauled over this roadway. About 30 to 60 miles of minor roads are yet to be built in the reservoir area. Construction of Norris Dam necessitates relocation of 15 miles of major highways and the building of a bridge over the lake to connect State Highway No. 33.

About 10 miles of major relocation will be necessary in the Wheeler Dam

area, including two major bridges crossing arms of the reservoir.

Austin Roll-A-Plane.—The Austin-Western Road Machinery Company, Aurora, Ill., has issued Bulletin No. 1351, describing and illustrating the Austin Roll-A-Plane, which is declared not only capable of producing a road surface free from waviness, vibration and impact, but also simplifies the method and reduces cost of rolling.

Power Equipment.—Celebrating this year its fiftieth anniversary in the industrial field, the Harnischfeger Corporation, of Milwaukee, Wis., manufacturer of the well known P&H power excavating and material handling equipment, has issued an attractive anniversary book entitled "The Fiftieth Year."

Davison's Textile Directory.—The Davison Publishing Company, 50 Union Square, New York City, has issued the 24th annual

edition of Davison's Textile Blue Book for buyers and sellers, carrying reports on all textile mills in the United States and Canada; cotton, woolen, silk, rayon, knitting, jute and linen mills; dyers, bleachers, printers and finishers, all arranged with plants alphabetically under each city and town. The price of the publication is \$7.50, for office edition, containing a classified directory of Mills and Textile Buyers Guide, \$5 for Handy edition, and \$4 for Salesmen's Directory.

Handling High Explosives.—The Institute of Makers of Explosives, New York, is distributing a folder presenting instructions and rules for consumers in transporting, storing, handling and using high explosives and permissible explosives, as recommended by the Institute. The instructions are primarily meant as safety precautions, having been worked out by technical men representing various companies of the Institute.



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

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MOST MODERN HOTEL

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250 ROOMS 250 BATHS

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REDMONT
BIRMINGHAM - ALA
250 Rooms - 250 Baths



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LEADING
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"Dispensers of True Southern
Hospitality"

Dinkler Hotels Co., Inc.
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Service for a limited
number of concerns..

★ THERE are a few progressive business organizations in the South who could profitably use the services of Groves-Keen, Inc. in some one or more of the following phases:

- Market Research.
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- Revamping old Sales literature.
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- Preparing and placing all forms of outdoor advertising.
- Building Sales Manuals.
- Preparing dealer display advertising helps, such as counter and window displays, streamers, paper and metal signs, etc.

For eight years Groves-Keen, Inc. have been constructively serving a small group of progressive business organizations who demand that every dollar spent in advertising show satisfactory returns.

Complete information about our services gladly furnished on request.

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CLASSIFIED OPPORTUNITIES

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Less than 100 lines 30 cents a line
100 to 299 lines 28 cents a line
300 to 499 lines 26 cents a line
500 or more lines 25 cents a line

Minimum space four lines. Count six ordinary words as one line. Cash with order on transient advertising. We reserve the right to decline any advertisement and request the assistance of our readers in excluding undesirable advertisements.

Positions Wanted

Man with eleven years executive experience in industrial survey work, all phases, desires connection with firm or organization where said training, and experience in meeting the public, establishing and maintaining good will, etc., would be of value. Detailed summary of experience upon request. Finest references. P. O. Box 264, Portsmouth, Va.

Sales Engineer for Latin America available. Age 34. C. E. graduate. Fluent Spanish. 12 years' experience building and highway products, sales and construction. Address No. 9289, c/o Mfrs. Record.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of MANUFACTURERS RECORD, published monthly at Baltimore, Md., for October 1, 1934.

State of Maryland,

City of Baltimore,

Before me, a Notary Public, in and for the State and City aforesaid, personally appeared J. Robert Gould, who, having been duly sworn according to law, deposes and says that he is the Treasurer of the MANUFACTURERS RECORD, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are: Publisher, Manufacturers Record Publishing Co., Baltimore, Md.; editor, Frank Gould, MANUFACTURERS RECORD, Baltimore, Md.; managing editor, Howard L. Clark, MANUFACTURERS RECORD, Baltimore, Md.; business manager, Frank Gould, MANUFACTURERS RECORD, Baltimore, Md.

2. That the owner is Manufacturers Record Publishing Company, Baltimore, Md.; Stockholders are: Frank Gould, MANUFACTURERS RECORD, Baltimore, Md.; C. R. Marchant, MANUFACTURERS RECORD, Baltimore, Md.; Wm. M. Beury, MANUFACTURERS RECORD, Baltimore, Md.; J. Robert Gould, MANUFACTURERS RECORD, Baltimore, Md.; Fleet-McGinley, Inc., Baltimore, Md.

3. That the known bondholders, mortgagees and other security holders owning or holding 1% or more of total amount of bonds, mortgages or other securities are: Baltimore Commercial Bank; estate of Richard H. Edmonds.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security-holders, if any, contain not only the list of stockholders and security-holders as they appear upon the books of the company, but also, in cases where the stockholder or security-holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security-holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona-fide owner, and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect, in the said stock, bonds or other securities than as so stated by him.

J. ROBERT GOULD,

Treasurer.

Sworn to and subscribed before me this 27th day of September, 1934.

EDWIN T. SICKEL,

(My commission expires May 6, 1935.)

Agencies Wanted

Distributor of mechanical lines, rated AA-1, having established sales force and contacts in Maryland and the District of Columbia, will entertain distribution of additional substantial and marketable lines. Address No. 9290 c/o Mfrs. Record.

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CLOCKS FOR ALL PURPOSES
Time Recording Devices and Supplies
Buy Our Rebuilt
Time Recorders and Watchman's Clocks.
They are Fully Guaranteed.
L. E. Kaiser and Sons, Inc.
221 N. Liberty St., Baltimore, Md.
24 Hour Service on Repairs

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MANUFACTURERS—Write for our FREE Classification Sheet of Inventions for Sale, covering 135 main subjects, and in one or more of which you will doubtless be interested. ADAM FISHER CO., 578 Enright, St. Louis, Mo.

Patent Number 1,813,554. "THEFT PREVENTER FOR TANKS". Can be manufactured cheaply and adaptable to most any tank for liquids especially automobiles. Do not reply unless you want to buy. D. P. Wickline, 723 Church St., Lynchburg, Va.

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PAUL B. EATON, Patent Attorney
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417 Wachovia Bldg., Winston-Salem, N. C.

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\$2,500 to \$25,000

This thoroughly organized advertising service of 24 years recognized standing and reputation carries on preliminary negotiations for positions of the caliber indicated, through a procedure individualized to each client's personal requirements. Several weeks are required to negotiate and each individual must finance the moderate cost of his own campaign. Retaining fee protected by a refund provision as stipulated in our agreement. Identity is covered and, if employed, present position protected. If you have actually earned over \$2,500, send only name and address for details.

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EXECUTIVE POSITIONS. Men capable of filling salaried positions, along sales, executive, engineering, or similar lines are offered our service for locating desirable positions. Our facilities cover every branch of industry and are nation-wide in extent. If you are capable of filling a position in the above classes, it will be greatly to your advantage to investigate this service. Details upon request.

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Qualified candidates desiring salaried positions are invited to use our individual and confidential services in contacting responsible employers. We negotiate all preliminary overtures. Established 1915.
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\$6,000,000 annually leaves the South for lemons transported half way around the world. A good, thin skin, juicy, commercial size lemon, adapted to Florida growing conditions, has been developed and proved—a problem that took 20 years to solve. Advise the amount you could invest and we will submit a sound proposition offering unusual opportunities.
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BANK IN MISSOURI TOWN
Good condition always
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Don't move your plant to Jacksonville. Your labor organization will object. But if you do run your own business, let us know what kind of an Industrial site you could use on water and rail transportation. Gress Manufacturing Co., Owners, Jacksonville, Florida

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Five thousand dollars will buy brick plant, Hamburg, S. C., including round kilns and equipment. Recently operated. Low land rent or royalty on brick as rent. Claussen-Lawrence Construction Company, P. O. Box No. 840, Augusta, Ga.

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DESIRABLE WAREHOUSE SITE IN THE HEART OF TAMPA, HILLSBORO COUNTY, FLA. Begins at the N.E. corner of 13th Street and 4th Avenue in the Estuary district. Runs 210 feet East on 4th Avenue by 95 feet deep on 13th street. Both streets paved thoroughfares and heavily travelled. Has 95 feet of railroad siding on 13th Street and a 10 foot alley in rear. Located within 3 blocks of Municipal warehouse and docks. Price: \$15,750.00, 1/4 cash and balance arranged. 6% off for cash.

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Fine factory location. Two giant hydro-electric plants close by. Empty mining houses, plenty lobar, water-power, lumber, cheap food, etc. Box 106, Cripple Creek, Va.

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450 H.P. oil engine unit, steam turbo units 500 to 1500 H.P. Complete 8 ft. band saw mill, all accessories. Piedmont Engineering Co., Box 232, Charlottesville, Va.

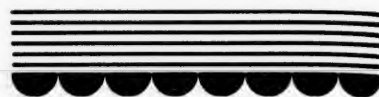
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YOU CAN INCREASE YOUR SALES with well planned and carefully written sales letters. 12 years' successful experience. State problem and enclose \$5 for sales or collection letter. Satisfaction guaranteed. Neil Caner, 400 Woodford Road, Baltimore, Md.



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NEW-USED RECLAIMED FROM 1870-72
Cut to Sketch and Stocked

ALBERT PIPE SUPPLY CO. Inc.
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ALBERT & DAVIDSON PIPE CO. INC.
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Reconditioned pipe, new threads and couplings, all sizes. 3/4 in. to 36 in., guaranteed suitable for all practical purposes.

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Large quantity new and used Government material in excellent condition, ready for immediate shipment. Low prices.

CENTRAL PIPE & SUPPLY CO.
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1¢ PER POUND

Approximately 50 tons flat steel bars, 20 to 40 ft. long:

1 1/2 x 6, 1 3/4 x 6, 2 x 8.
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USED MACHINERY FOR SALE

8' left hand Stearns band mill with filing room equipment.

Carriage with steam set works and offset.

10" steam feed with end valves.

Heavy Clark double edger with saws.

Clark automatic trimmer with saws.

One heavy swing cut off saw.

One 30 K. W.-110 V.-D.C. generator with automatic engine and switch board.

One 12 x 30 Woods timber sizer.

One American 77-B 9" matcher with profiler.

One 45" fan and separator.

One 10" American inside moulder.

One Hoosier Rip saw. Also, one locomotive type air compressor with storage tank.

One iron frame swing cut off saw and ten steel lumber buggies.

Standard gauge 12 x 16 Mogul locomotive.

Two Clyde skidders, standard gauge. Also, one pile driver.

One loader with 7 x 10 Lambert engine.

Snow Underwriters' fire pump 1000 G. P. M.

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50,000 gallon elevated steel tank on steel tower.

100,000 gallon steel storage tank.

Hydrants and 6" cast iron water mains.

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One 11 x 15 Hardie-Tynes engine, side crank self contained.

Giddings & Lewis 60" horizontal band resaw.

Miscellaneous lot of shaftings, pulleys and boxes and steel rolls & bearings.

12 to 15 miles first class forty pound relaying rails.

One Casey-Hedges vertical filter feed water heater.

7" steam openings.

One 8 x 10 vertical center crank steam engine.

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All transformers guaranteed for one year.

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"America's Used Transformer Clearing House"

Station M. Cincinnati, Ohio

Gregory Hi-Grade Rebuilt Electric Motor Bargains

A. C. MOTORS 3-Phase-60-Cycle

HP	Make	Type	Speed
250	Westinghouse	CX	580
150	General	form K	600
75	General	KT	1200
60	Howell	SC	900
25	Allis Chalmers	AN	1150

SLIP RING MOTORS 3-Phase-60-Cycle

HP	Make	Type	Speed
125	Allis Chalmers	ANY	850
100	General	form M	600
50	Wagner	BR	850
40	Westinghouse	HF	1140

SYNCHRONOUS MOTORS 3-Phase-60-Cycle

HP	Make	Type	Speed
350	Ideal	SMS	1200
240	General	ATI	514

ROTARY CONVERTERS

300 KW. Gen. Elec., type HC, form P,
600 RPM., 250 V. D. C. to 188 V. A. C.,
6 ph., 60 cy.

STEAM TURBINE SET

150 KW. Gen. Elec. Curtis, D. C.

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BUY MORECO REBUILT EQUIPMENT

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NEW 40 VOLT ARC WELDING EQUIPMENT

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We are offering the best in Good used Equipment for Industrial plants of all kinds, from the Old Hickory Powder Plant as well as other plants purchased by us recently. Let us quote. Our prices are always money saving.

Just a few of our many offerings:

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1-300 H.P. Helne; 3-250 H.P. B. & W.; 4-600 H.P. Edgemoor; 1-250 H.P. Marine; 9-150 H.P. H. R. T.; 1-200 H.P. H. R. T.

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1-1500 Cross Compound Corliss; 2-350 H.P. Nordberg; 1-300 H.P. Lane Corliss; 1-12x10 American Ball duplex; 1-80 H.P. Ames Automatic; all sizes vertical engines, 5 to 60 H.P.

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5-18" turbine driven; 2-14" turbine driven; 3-14" motor driven; 4-8" turbine driven; 1-10" Goulds; 2-8" Goulds; 1-6" Goulds; 2-5" Goulds; 1-4" Goulds, all motor driven; all sizes belted centrifugals from 4" to 10" in various types, including several dredge and sand pumps.

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50-Steam pumps, single and duplex; tank pumps, boiler feed and general service pumps, in all sizes; all standard makes and in perfect condition.

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100-Electric Motors, slip ring and squirrel cage; 220, 440 and 550 volts; sizes range from 7½ H.P. to 300 H.P. With or without starters; all standard makes and perfect condition.

TANKS

200-Steel Tanks, various sizes, for pressure and storage; all in good condition. Send for list.

CHEMICAL EQUIPMENT

Still, columns, autoclaves, centrifugal wringers; nitrating units; benzol recovery equipment; ammonia recovery equipment; towers, acid eggs; acid pumps and miscellaneous equipment of all kinds. Send us your inquiries.

PAINT AND PIGMENT PLANT

1-Steam Jacketed, ribbon conveyor Mixer; 1-Day 20" Paint Mill; 1-Kaestner 42" Buhr Mill; 1-Aero Pulverizer; 1-Hardinge 8" x 30" Pebble Mill; 1-Raymond 4 roll high side Mill; 4-Agitators and Mixing Pots.

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We have just purchased equipment for a pulp plant, including digester and diffuser building, with capacity of 100 tons pulp per day. Detail information on request.

Complete 50 ton pulp mill with wood room, caustic recovery, digester, tanks, power plant, etc. Also beater, Jordans, stuff pumps, 72" wet machine, 60" Fourdrinier, calenders, winders, etc.

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Complete 40 ton per hour capacity Briquetting Plant with Komareck Presses, Rutledge fluxer and mixing equipment. Practically new.

GENERAL EQUIPMENT

Complete line of General Equipment, Boilers, Engines, Generators, Pumps, Heaters, Tanks, Blowers, Fans, Machine Tools, etc. Write for details.

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OLD HICKORY, TENNESSEE

NEW NEVER - SUBMERSIBLE PUMPS - ACTUAL USED ELECTRIC-MOTOR-DRIVEN-CENTRIFUGAL COST

4" Size 500 Gallon

SPECIFICATIONS
Capacity—500 GPM
80' Head
750 GPM—No Head
Pump Bronze Fitted
Ball Bearing
Motor—Water Cooled
Ball Bearing
15 HP—220 V—3 PH
60 CYC 1750 RPM
Floor Space 36"x24"
Weight—1380 lb.

CAN ALSO BE USED NOT SUBMERGED
Price—\$375.00

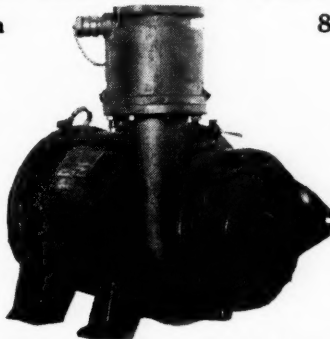
Each

8" Size 1500 Gallon

SPECIFICATIONS
Capacity—1500 GPM
75' Head
2395 GPM—No Head
Pump Bronze Fitted
Ball Bearing
Motor—Water Cooled
Ball Bearing
46 HP—220 V—3 PH
60 CYC 1150 RPM
Floor Space 48"x28"
Weight—2980 lb.

CAN ALSO BE USED NOT SUBMERGED
Price—\$600.00

Each



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THE PROPERTY consists of 68 acres with deep water frontage. Half of acreage is enclosed by high fence. There are railroad tracks throughout connecting with the main line of the Southern Railway. There is a water system, sewerage system and complete fire protection equipment.

There is also a launching basin 150 by 350 feet suitable for docks, a power plant with direct connected generator producing about 350 horsepower.

Also large lot of machinery and materials including ship clamps, augers, blocks, spars, motors, a locomotive crane, an air compressor, drills and air hammers.

The entire property is in good order. All buildings have recently been repaired and repainted.

Besides shipbuilding, this plant could easily be adapted to some other industry such as airplane construction, sugar refining, lumber manufacturing, paper making, etc., etc.

The climate in this region is very mild, so that outdoor work can be carried on throughout the entire year.

Full details, including blueprint of the property, will be sent upon request. Also prompt arrangements will be made for those interested to make an inspection. Please write or wire,

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LIQUIDATION SALE

PURSUANT to an order of the United States District Court, the Trustee in Bankruptcy of the Grigsby-Grunow Company, Inc., offers for sale all of the machinery, equipment, inventory, good will, patents, trade marks and trade names of the Grigsby-Grunow Company, Inc., as well as real estate and buildings used in the manufacture of MAJESTIC radios, tubes and refrigerators.

The machinery consists of the very finest makes of all types of metal working and wood working machinery, also a completely equipped tube plant, enameling plant and plating plant, all of which are in immediate operating condition.

The inventory consists of made-up parts, parts in process and raw materials for radios, refrigerators and radio tubes. The Service Department on all three items has been kept intact.

The good will consists of the name "MAJESTIC" as applied to radios, refrigerators and tubes, which name has been extensively advertised throughout the world, and which name is secured by copyrights in practically every country in the world. The good will, also, includes many other names, trade names, patents and copyrights.

The real estate consists of factory buildings which have a floor area of approximately 950,000 square feet, and are suitable for almost any type of manufacturing.

The Trustee is authorized to sell at public or private sale, and is now prepared to receive offers for any part or parcels of the assets, which offer if satisfactory will be approved.

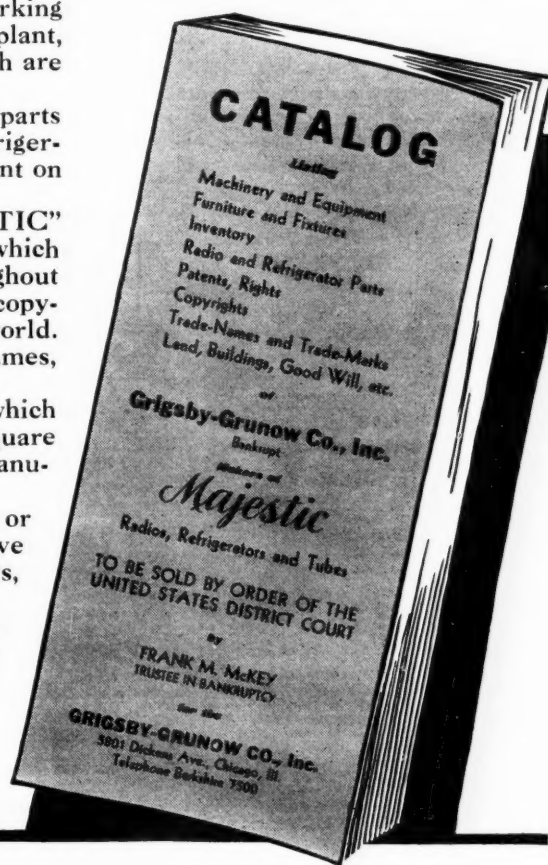
Full opportunity will be given to prospective buyers to inspect the assets. Competent salesmen will be in attendance at the plant, 5801 Dickens Avenue, Chicago, Illinois, at all times, and an early investigation of the property is solicited.

REFRIGERATION SERVICE DEPARTMENT

The Trustee, under order of the Court, has set up a Refrigeration Service Department, to maintain service and to sell service parts for refrigerators. This will maintain the name and prestige of "Majestic" before the public and be an asset of major importance to anyone buying the "good will" of the company.

SERVICE PARTS FOR RADIOS

There is on hand a considerable quantity of service parts for radios which are staple merchandise and are being sold to the users of the millions of Majestic radios now in service.



A complete catalog, listing the assets to be sold, has been prepared and will be available to any prospective buyer on request to Mr. Frank M. McKey, Trustee in Bankruptcy, Grigsby-Grunow Company, Inc., 5801 Dickens Avenue, Chicago, Illinois.

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Lakeland's Business Gain

Substantial business progress for the first seven months compared with the similar period of last year has been made by Lakeland, Fla. Based on a survey by Hervey W. Laird, manager of the Lakeland Chamber of Commerce, the record shows that Lakeland, a city of 20,000 population, has made great economic strides in all departments of community business. One of the larger enterprises reported a gain of over 105 per cent, another an increase of 70 per cent. An established standard service jumped 250 per cent. One lumber dealer reported 50 per cent increase and a furniture store 100 per cent gain for two of the seven months. More business has come from territory adjacent to Lakeland. One large store estimates that 60 per cent of its sales are to people outside of Lakeland.

Inquiry among all classes of business has brought out hardly a single report of less volume than a year ago, and practically without exception there have been reports of increases from 10 to 100 per cent for the period. Building materials gained 40 to 50 per cent; gasoline 15 to 30; bakeries 20 to 33; groceries 25 to 40; furniture 10 to 25; men's goods 10 to 25; automobiles 50 to 70; shoes 15 to 25; fertilizers 10 to 15; garages 25 to 33; hardware 15 to 25; hotels' winter business 75 to 100; summer business 40; machinery about the same as a year ago; radio and batteries 60 to 100; electrical 20 to 27; and dry cleaners 10 to 25. Plumbers have an increase of 25 to 30 per cent, office supply houses and stationers are 15 to 20 per cent over a year ago.

The city light and water department shows 1934 increases for January to July period of 645 meters—144 combination, 18 power, 181 light and 282 water connections. There are 100 more gas meters, with a business increase of 10 to 20 per cent, and a considerable increase in telephone returns. Real estate sales were larger, with approximately 50 per cent more rental activity.

Yearbook of Railroad Information.—The Committee on Public Relations of the Eastern Railroads, 143 Liberty street, New York, has issue A Yearbook of Railroad Information, 1934 edition, which is useful as a ready reference for authoritative facts relating to the railroad industry. With the exception of two or three instances, all information in the Yearbook has been drawn from original reports of the Interstate Commerce Commission. Where reports were not available, the facts were developed by the Bureau of Railway Economics, of Washington, D. C.

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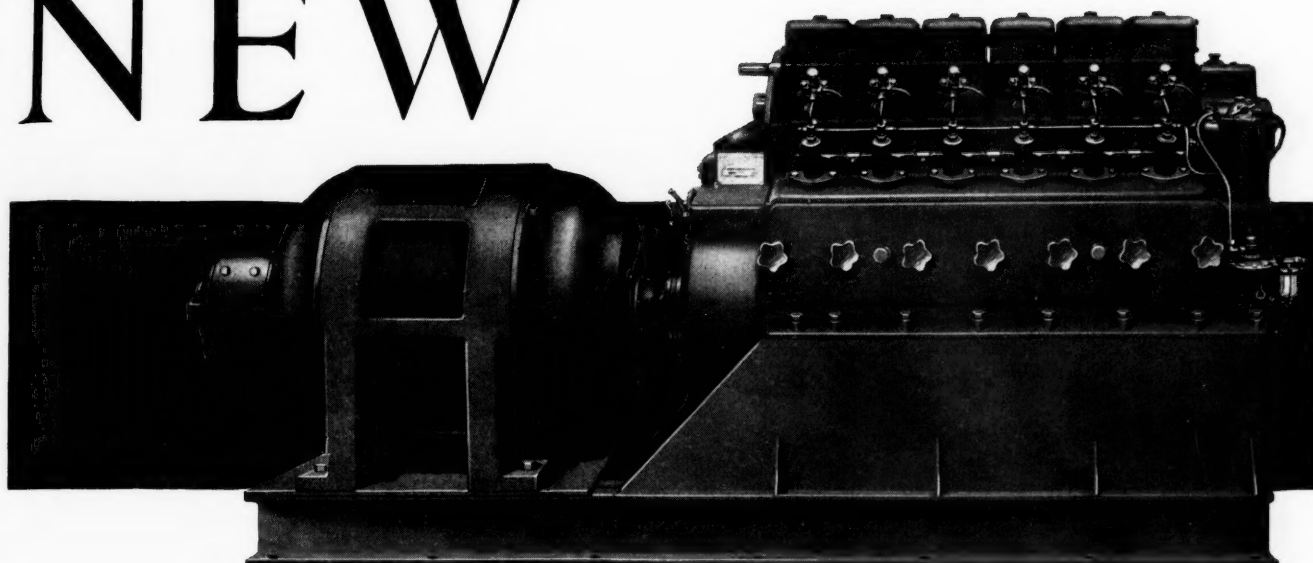
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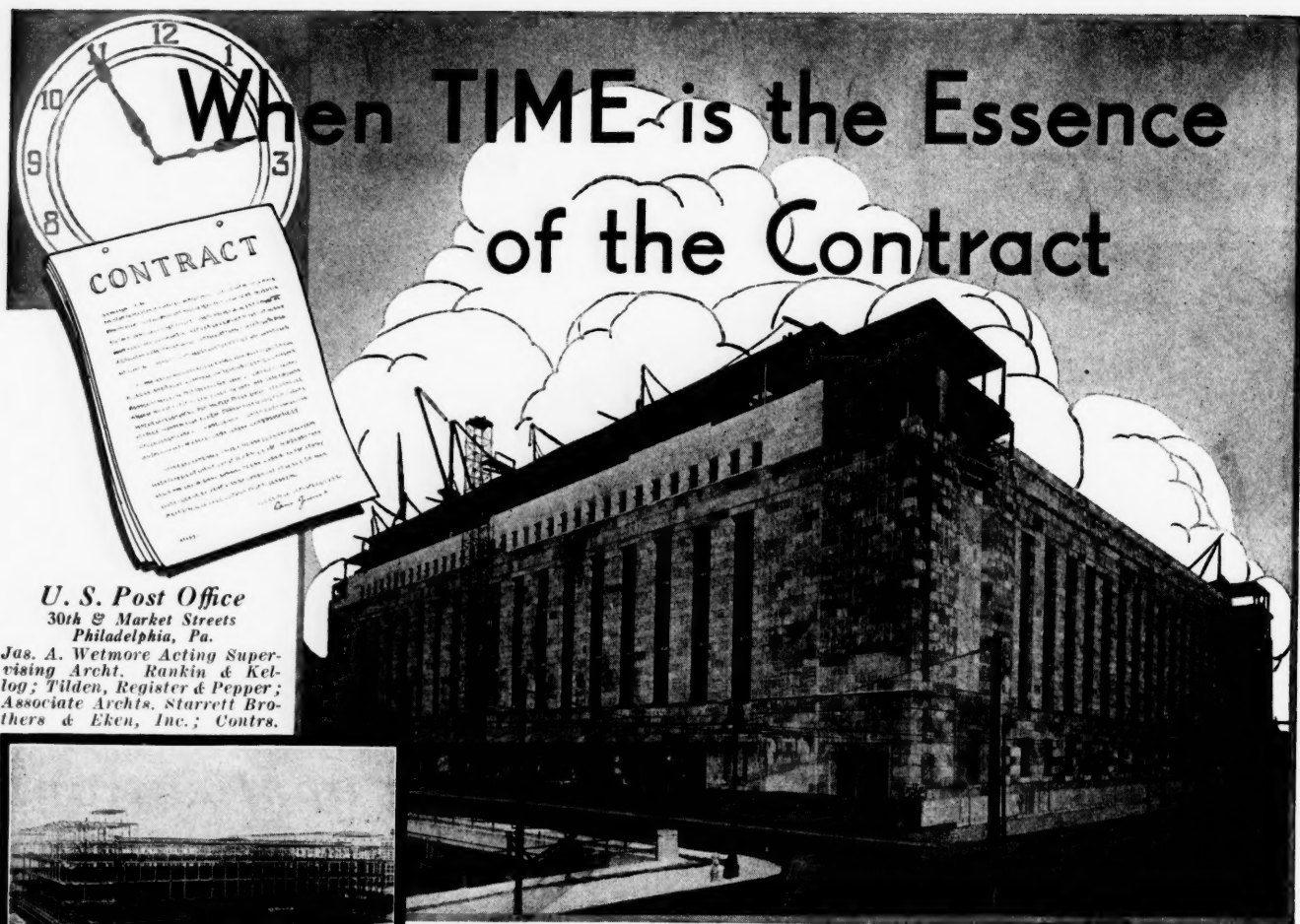


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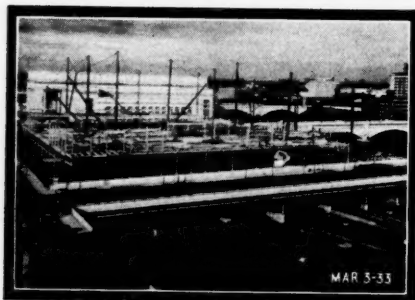
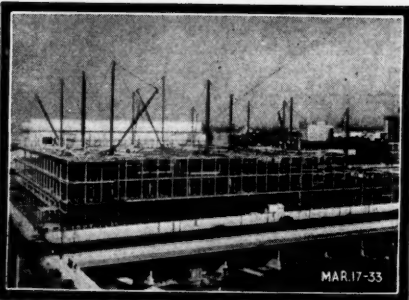
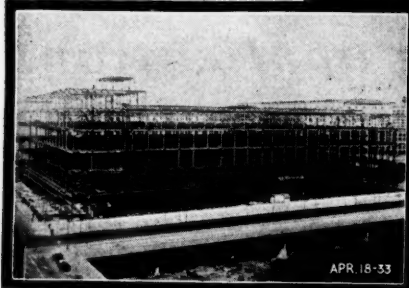
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